нием на амбулаторном этапе фитотерапии в виде густого экстракта корня солодки и применением на маршруте среднегорного природного парка курорта Нальчик природной аэроионофитотерапии, лечебной физкультуры, психотерапии достоверно значимо (p<0,05) способствует оптимизации реабилитационных мероприятий.

რეზიუმე

ბუნებრივი სამკურნალო ფაქტორები პოსტკოვიდური სინდრომით პაციენტების სამედიცინო რეაბილიტაციაში ამბულატორიულ ეტაპზე

[1,2]ა.კაისინოვა, [3]ა.აჩაბაევა, [4]ლ.სტაროკოჭკო, [4]ი.გაიდამაკა, [5]ე.კაისინოვა

[1]ფედერალური სამედიცინო-ბიოლოგიური სააგენტოს ჩრდილოკავკასიის ფედერალური სამეცნიერო-კლინიკური ცენტრი, ესენტუკი; [2]პიატიგორსკის სამედიცინო-ფარმაცევტული ინსტიტუტი – ვოლგოგრადის სა-ხელმწიფო სამედიცინო უნივერსიტეტის ფილიალი; [3]ყაბარდო-ბალკარეთის ხ.ბერბეკოვის სახ. სახელმწიფო უნივერსიტეტის სამედიცინო ინსტიტუტი, ნალჩიკი; [4]სტავროპოლის სახელმწიფო სამედიცინო უნივერსიტეტი; [5]მოსკოვის ი.სეჩენოვის სახ. პირველი სახელმწიფო სამედიცინო უნივერსიტეტი (სეჩენოვის უნივერსიტეტი), რუსეთი

კვლევის მიზანს წარმოადგენდა პოსტკოვიდური სინდრომით პაციენტების სამედიცინო რეაბილიტაციის თერაპიული ეფექტურობის შეფასება ამბულატორიულ ეტაპზე სარეაბილიტაციო პროგრამებში ბუნებრივი სამკურნალო ფაქტორების და ფიტოპრეპარატების ჩართვის პირობებში.

კურორტ ნალჩიკში დაკვირვების ქვეშ იმყოფებოდა კორონავირუსული COVID-19-ინფექციაგადატანილი 64 პაციენტი. პაციენტები დაიყო 2 ჯგუფად: შედარების ჯგუფი შეადგინა 30 პაციენტმა, რომლებიც იღებდნენ მინერალურ სასმელ წყალს “ნალჩიკი”, სამკურნალო ფიზკულტურას, ქაფიან კოქტეილებს და რექტალურ სანთლებს ძირტკბილას ფესვის სქელი ექსტარქტით. ძირითადი ჯგუფი შეადგინა 34 პაციენტმა, რომელთაც დამატებით დანიშნული ჰქონდათ ბუნებრივი აეროიონოფიტოთერაპია კურორტ ნალჩიკის ბუნებრივი პარკის შუა მთიანეთის მარშრუტზე, სამკურნალო ფიზკულტურასთან და ჯგუფურ ფსიქოთერაპიასთან ერთად პარკის სამკურნალო მოედნებზე. მკურნალობის ეფექტურობა შეფასებულია “Medical Research Council”-ის სკალის გამოყენებით, შფოთვისა და დეპრესიის ჰოსპიტალური სკალით; განისაზღვრებოდა გლიცირიზებული მჟავას დონე სისხლის შრატში, ფუნქციური სინჯები, კარდიოინტერვალოგრაფია დინამიკაში.

ჩატარებული შედარებითი ანალიზით გამოვლინდა ბუნებრივი სამკურნალო ფაქტორების უნარი დადებითად იმოქმედოს ორგანიზმის ძირითად სასიცოცხლო სისტემებზე: ძირითადი ჯგუფის პაციენტებში, საწყის მონაცემებთან შედარებით, გამოვლინდა ქოშინის შემცირება 29,4%-ით (p<0,01), ადაპტაციური პოტენციალის მომატება, საშუალოდ, 42,4%-ით (p<0,01), ფიზიკური აქტივობის გაუმჯობესება, საშუალოდ, 36,2%-ით (p<0,01), ჰემოდინამიკური მაჩვენებლების ნორმალიზება. აღნიშნული მაჩვენებლები ძირითადი ჯგუფის პაციენტებში 20-25%-ით აღემატება ასეთებს შედარების ჯგუფში (p<0,05).

პოსტკოვიდური სინდრომით პაციენტების სამედიცინო რეაბილიტაციის ახალი შემუშავებული მეთოდიკა ამბულატორიულ ეტაპზე ფიტოთერაპიის სახით ძირტკბილას ფესვის სქელი ექსტარქტის და ბუნებრივი აეროიონოფიტოთერაპიის ჩართვით კურორტ ნალჩიკის ბუნებრივი პარკის შუა მთიანეთის მარშრუტზე, ასევე, სამკურნალო ფიზკულტურისა და ჯგუფურ ფსიქოთერაპიის გამოყენებით სარწმუნოდ (p<0,05) უწყობს ხელს სარეაბილიტაციო ღონისძიებათა ოპტიმიზებას.

INFLUENCE OF VARIOUS FACTORS ON THE VITAMIN D LEVELS IN MENOPAUSAL WOMEN LIVING IN KVEMO KARTLI

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Vitamin D, the same as calciferol, the “vitamin of the sun”, the hormone D is produced endogenously in the skin with the help of the sun’s ultraviolet rays. Vitamin D enters the human body from the surface of the body and is converted into an active form in the liver and kidneys, Vitamin D belongs to the group of fat-soluble vitamins and is also present in food, although in very limited quantities. It participates in the metabolism of calcium and phosphorus, plays an important role in the functioning of the musculoskeletal system, although in recent years special importance has been attached to the treatment and prevention of diseases such as diabetes, tuberculosis, cardiovascular, nervous, autoimmune diseases, and others [3]. Its role as an immunomodulator was particularly prominent during the Covid 19 pandemic.

The history of the study of vitamin D dates back to ancient times when historical sources described disease rickets in children associated with vitamin D deficiency. Approximately 1 billion people worldwide have vitamin D deficiency and it is

mainly reported in the elderly, obese and hospitalized patients. Vitamin D synthesis is closely related to human lifestyle, eating habits, fortified food intake, alimentary obesity, reduced exposure to the sun, sex, clothing style, aging (above 50 years), socioeconomic status, social status, life In megapolis, skin pigmentation, degree of air pollution, etc [2,5,6].

According to recent ranking publications, vitamin D deficiency during postmenopause is sharply highlighted, vitamin D deficiency in women during this period correlates with metabolic syndrome, arterial hypertension, ischemic heart disease, dyslipidemia, diabetes mellitus, and others. Relatively scarce information is available on menopausal women with vitamin D deficiency and its association with various environmental factors. The cause of vitamin D deficiency during menopause may be various, e.g metabolic changes in the woman during the menstrual period and Body mass index, nutritional characteristics [8]. Considering the fact, that vitamin D deficiency during menopause can act as a predictor of complications developed in postmenopause, special attention should be paid to studying its level in this period [1]. To overcome vitamin D deficiency, recommendations should concern not only clinical factors but also the duration of exposure to sunlight, skin pigmentation, eating habits, age, sex, weight index, clothing and work style characteristics, air pollution, season, etc.

At present, there is no population study on D deficiency in Georgia, according to which data on vitamin D deficiency can be summarized in terms of gender, ethnicity and age. However, the National center of disease control of Georgia in collaboration with the center of disease control of Atlanta had been working on a project "Strengthening Micronutrient Deficit Surveillance in Georgia"(2018-2019). The aim of the project was to establish an effective system of nutritional supervision and to obtain basic information on micronutrient deficiencies. In 4 selected regions, Tbilisi, Kakheti, Adjara, and Samegrelo, 5 nutritional status indicators were studied: iron, calcium, vitamin D, folate, and iodine. Vitamin D deficiency was present in about 32% of the children examined, calcium deficiency in about 18%. Signs of rickets were detected in 32% of children aged 1 to 2 years.

Based on international experience, it is interesting to study the quality of health and level of D vitamin in Menopausal females, from a region with an ethnically diverse population and industrial production, playing an important role in the country's economic development. Kvemo Kartli is a good example of such a region.

Considering above mentioned issues, the attempt to study the prevalence of vitamin D deficiency in the blood, even in certain groups of the population, is particularly important and useful in the country, in order to strengthen lifestyle modification recommendations as well as drug prevention strategies.

The aim of the study was to study the level of vitamin D in menopausal women aged 47-54 living in Kvemo Kartli region (in particular, in the city of Rustavi and its surroundings); to determine the relationship between various factors and vitamin D deficiency; to formulate recommendations about efficient preventive activities based on epidemiologic study results.

The following tasks were identified to achieve the aim of the study.

1. To single out the target group of menopausal women aged 47-54, living In the Kvemo Kartli region (in particular, in the city of Rustavi and its surroundings)

2. To determine the relationship between the degree of exposure to the sun, type of work, clothing style, season, air pollution and other factors with the level of vitamin D in the same population, Using descriptive and analytical methods of the study results.

3.To develop recommendations for effective preventive activities to reduce the prevalence of vitamin D deficiency in the blood and to reduce the burden of menopausal complaints and complications in the population of women aged 47-54.

Material and methods. Cross-sectional (prevalence) research was conducted in three different medical institutions in Rustavi with a high number of patients. The study population involved women aged 47-54 years who had not received vitamin D supplements or other food supplements in the last 2 months. It was also taken into account that these women should not have had diseases that alter the metabolism of vitamin D, such as disease of liver and kidney, metabolic disorders of the bones, malabsorption, hypercortisolism, malignant tumors, sedentary lifestyle> 1 week, having history of taking drugs affecting bone marrow etc.

The research was conducted using standard questionnaire , which revealed various factors affecting the level of vitamin D (sun exposure, clothing style, traditions, type of work, frequency of use of sunscreens, being outdoors during the day and working, nutritional characteristics, social conditions, etc.) as well as Demographic characteristics. Half of the study population underwent blood vitamin D screening in late autumn, the other half in spring (April, May).

The study population was selected among women visiting clinics due to various medical issues.

The abnormal course of menopause was not a criterion for inclusion in the study. Vitamin D level in blood plasma was assessed by determining the 25 (OH) D by the immunoenzymatic method.

Results and discussion. Of the 198 females surveyed, 53% was from urban-area and 47% from rural area.

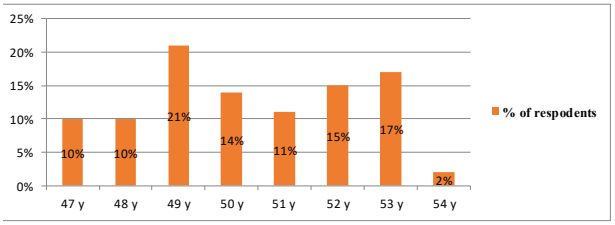

Fig. 1. Age distribution of respondents

According to the nationality, the respondents were distributed as follows: Georgian - 108 (55%), Azerbaijani - 75 (38%), Armenian - 6 (3%) and Russian - 9 (4%).

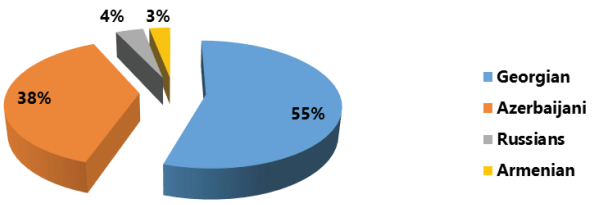

Fig.2. Distribution of respondents by nationality

In Georgia (Kvemo Kartli region) most of the food is not fortified with vitamin D, therefore the synthesis and level of vitamin D in the blood of women living in this region should largely depend on the effects of sunlight. There are various factors to consider, including the style of dress.

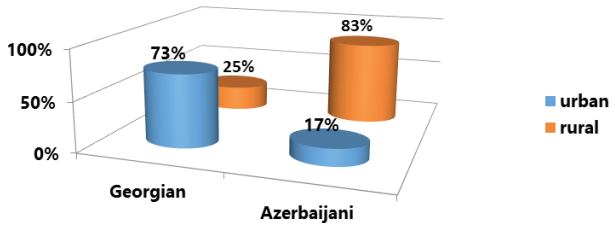

Fig. 3. Distribution of respondents by place of residence

The style of women's clothing and dress in the Kvemo Kartli region is conditioned by ethnic and religious diversity. European, Eastern and local (Caucasian) styles make a great contribution to the development of the culture of dress and clothing. The socio-economic level of women living in Kvemo Kartli is not different from each other and does not depend on their ethnic origin. Over the past decades, their attire, food traditions have undergone a transformation and are now approaching urban standards.

As mentioned, the majority of respondents were Georgian -108 (55%) and Azerbaijani-75 (38) women. Accordingly, we studied the style of dress of women of this nationality at the level of vitamin D, in contrast to Georgian women in this region, Azerbaijani women often wear headscarves for cultural and religious reasons, thus helping to limit the impact of sunlight on the skin and vitamin D synthesis in the skin. Respondents were divided into 3 categories based on their clothing: open style, closed style and headscarf.

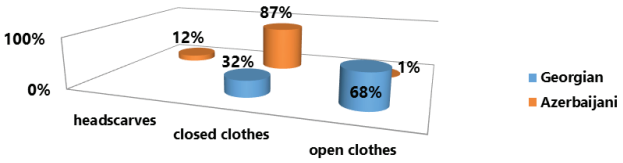

Fig. 4. Percentage distribution of respondents by nationality and style of dress

32% of Georgian respondents wore closed clothes and 68% wore open clothes. None of them wore headscarves. The results of the analytical study revealed a statistically significant correlation between dress style (females wearing closed clothes and headscarves) and vitamin D deficiency (OR) = 8.0 95% CI (1.0 -64.1). This result suggests that clothing style may affect vitamin D levels. And is consistent with data from many international studies.

The level of vitamin D in the blood is also affected by the time of exposure to the sun [4]. Consequently, the distribution of the respondents based on their work style and location (indoor or outdoor) characteristics was interesting. The survey found that 35% of respondents were mentally engaged in their work, while 65% were engaged in physical work, of which 68% worked indoors and 32% were employed outdoors.

77% of respondents with adequate levels of vitamin D were physically active. It should also be noted that none of the respondents working in the open space were deficient in vitamin D. The majority of respondents, regardless of nationality, spent relatively little time in the open space except for working hours, which can be explained by the social isolation and quarantine regulations in place at Covid 19, so no significant difference or impact on vitamin D levels was observed in this regard.

Vitamin D levels are greatly influenced by the use of sunscreens. In this regard, the data on the use of these creams by women living in the Kvemo Kartli region did not differ from each other, in most cases sunscreen had not been used by these women, so it was impossible to establish any correlation between the quality of sunscreens and vitamin D levels.

As already mentioned, Kvemo Kartli region is second only to Tbilisi in terms of industrial production. It is therefore interesting to determine the impact of mining industrial pollution on the health of the population and in particular on vitamin D levels. In recent international publications, there is common talk about the correlation between air pollution and D vitamin deficiency. For instance, there was a positive correlation seen between rickets and air pollution in Teiran, Iran.

A lot of surveyed women lived in rural areas (especially women of Azerbaijani nationality) and there was no statistical information about possible air pollution near their homes or workplaces, so the impact of the above-mentioned risk factor was not studied.

Vitamin D levels in the blood are often affected by the season of year [7]. For example, in summer and early autumn, the risk of vitamin D deficiency is reduced by 70% compared to winter, so one of the interesting issues was to determine the correlation of vitamin D levels in menopausal women in Kvemo Kartli with seasonal variability. Blood vitamin D levels were studied in 50.5% of respondents in autumn and in 49.5% of respondents in spring.

The number of Respondents having vitamin D levels in the range of 1-10 ng/ml (%) was 10 times higher in spring compared to Autumn. Respondents having vitamin D levels in the range of 10.9- 29.9 (88%) was much higher compared to women who experienced the same deficit (52%) in the spring. Vitamin D levels within the norm (above 30 ng/ml (%)) were higher in the autumn than in the spring . These differences could be derived from not only seasonal changes, but also other factors contributing to vitamin D synthesis.

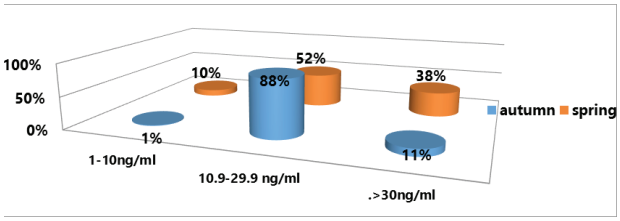

Fig. 5 Distribution of Respondents by season, during which Survey was done and Vitamin D Levels

As for the proportional distribution of respondents based on nationality and blood levels of vitamin D, establishing any regularity was not possible. Among Azerbaijani women, Vitamin D deficiency ranged in 1-10 ng/ml (%) was not seen at all, insufficiency of vitamin D level (10.9-29.9 ng/ml (%)) was seen in 60%, which was also a better indicator compared to Georgian women.

Regarding having adequate levels of VItamin D, Azerbaijani women had better rates - (40%), compared to Georgians (16%). Better levels of vitamin D in the blood of Azerbaijani women compared to Georgians can be explained by various factors affecting the synthesis and concentration of vitamin D. For example, as noted, only 17% of Azerbaijani women live in cities and 83% in rural areas, so they are likely to spend more time outdoors (in vegetables and gardens), which once again confirms the impact of sun exposure on vitamin D levels. In addition, the period and duration of outdoor work were also important. Re-

garding this issue, there was no statistically significant difference between Georgian and Azerbaijani women.

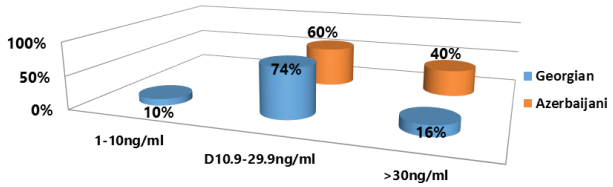

Fig. 6. Distribution of respondents by nationality and blood level of vitamin D

51 Azerbaijani and in 47 Georgian respondents were tested for vitamin D in spring. The percentage corresponds to this number of respondents.

The study found that 21% of Georgian respondents in the spring had a vitamin D level in the range of 1-10 ng/ml (%), and no significant deficiency was found in any of the Azerbaijani women, which may be related to their lifestyle, in particular throughout the year. That could be related to working in an open space in the village. As for vitamin D level in ranges of 10.9-29.9 ng/ml (%), there was no significant difference observed between Georgian and Azerbaijani respondents during the spring season.

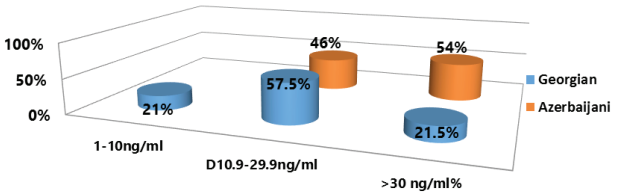

Fig. 7. Distribution of respondents by nationality and blood level of vitamin D (spring)

24 Azerbaijani and 61 Georgian respondents were tested for vitamin D in their blood in autumn. The percentage corresponds to this number of respondents. during this season, severe vitamin D deficiency was detected only in Georgian respondents, with no statistical difference in levels within the normal range of vitamin D between Azerbaijani and Georgian women.

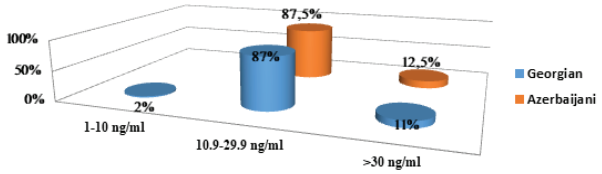

Fig.8. Distribution of respondents by nationality and blood vitamin D level (in autumn)

Overall, an Adequate level of vitamin D in the blood (>30 ng/ml) was seen in 24% of respondents, insufficiency in 70%, and deficiency in 6%. The majority of those diagnosed with vitamin D deficiency in the blood - 90% are urban residents. 77% of respondents with adequate levels of vitamin D in the blood are involved in physical work. It should also be noted that none of the respondents working in open spaces had a deficiency of vitamin D in their blood.

This variability in the data suggests that except for common risk factors, it is recommended to consider many other aspects/ issues which can lead to vitamin D deficiency in menopausal women, such as characteristics of Menopause (Physiological or Pathological), Family History, different Endocrine diseases, menopause-related chief complaints, BMI, nutrition etc

The degree of correlation between risk factors and vitamin D deficiency in the blood was determined by bivariate analysis. A statistically significant correlation was found between the risk factors, we had assessed and the presence of vitamin D deficiency:

1. Correlation Between the season of determining the level of vitamin D in the blood and the level of vitamin D, in particular, the chance of having a deficiency of vitamin D in the blood in spring is 11 times higher than in autumn (odds ratio (OR) = 11.3 95% CI (1.4-90.6).

2. Correlation Between the type of work (less physical activity) and vitamin D deficiency (OR) = 3.5 95% CI (1.1-12.6), 77% of respondents with adequate levels of vitamin D in the blood do physical type of work. work with less physical activity)

3.Correlation between dress style (closed garments and headscarves) and vitamin D deficiency (OR) = 8.0 95% CI (1.0 -64.1).

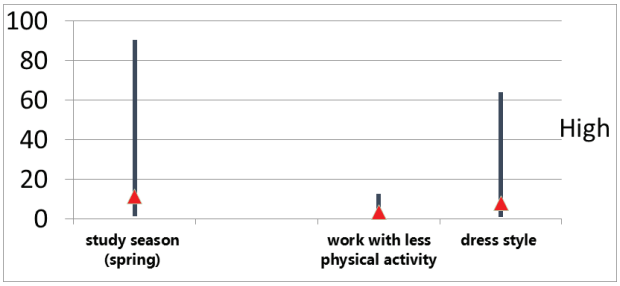

Fig. 9. Prevalence of the odds ratio (OR) between the study season (spring) and the deficiency of vitamin D; Between less physical activity and vitamin D deficiency; Between dress style and vitamin D deficient levels

Conclusions. Thus, the study showed that 24% of the menopausal women involved in our study, living in Kvemo Kartli had adequate levels of vitamin D (≥30 ng/ml), and 76% of the women had vitamin D deficiency/insufficiency in the blood. The majority – 90% of those diagnosed with vitamin D deficiency are urban residents, 77% of respondents with adequate levels of vitamin D in the blood do physical work. At the same time, none of the respondents working in the open space and ethnically Azerbaijani and examined in the fall had a deficiency of vitamin D in their blood.

Considering the correlation with the above-mentioned issues related to vitamin D deficiency, special attention should be paid to different factors contributing to vitamin D deficiency/ insufficiency in menopausal women, such as the degree of exposure to the sun and various aspects related to it, evaluation and prevention of vitamin D deficiency prevalence. High variability of vitamin D levels in women during menopause suggests that other factors may play a role in the synthesis and maintenance of the level of vitamin D.

Accordingly, It is genuinely crucial to formulate recommendations to reduce the burden of complaints and complications of menopause and plan preventive activities.

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SUMMARY

INFLUENCE OF VARIOUS FACTORS ON THE VITAMIN D LEVELS IN MENOPAUSAL WOMEN LIVING IN KVEMO KARTLI

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The aim of the study was to study the level of vitamin D in menopausal women living in Kvemo Kartli region; to determine the relationship between various factors and vitamin D deficiency; to formulate recommendations about efficient preventive activities based on epidemiologic study results.

Research methods and materials: Cross-sectional (prevalence) research was conducted in three different medical institutions in Rustavi with a high number of patients. The study population involved women aged 47-54 years who had not received vitamin D supplements or other food supplements in the last 2 months**.** The research was conducted using standard questionnaire, which revealed various factors affecting the level of vitamin D, as well as Demographic characteristics. Half of the study population underwent blood vitamin D screening in late autumn, the other half in spring.

The study showed that 24% of the menopausal women involved in our study, living in Kvemo Kartli had adequate levels of vitamin D (≥30 ng/ml), and 76% of the women had vitamin D deficiency/insufficiency in the blood. The majority -90% of those diagnosed with vitamin D deficiency are urban residents, 77% of respondents with adequate levels of vitamin D in the blood do physical work. At the same time, none of the respondents working in the open space and ethnically Azerbaijani and examined in the fall had a deficiency of vitamin D in their blood. A statistically significant correlation was found between the risk factors, we had assessed and the presence of vitamin D deficiency: Correlation Between the season of determining the level of vitamin D in the blood and the level of vitamin D, in particular, the chance of having a deficiency of vitamin D in the blood in spring is 11 times higher than in autumn (odds ratio (OR) =11.3 95% CI (1.4-90.6); Correlation Between the type of work (less physical activity) and vitamin D deficiency (OR) = 3.5 95% CI (1.1-12.6), 77% of respondents with adequate levels of vitamin D in the blood do physical type of work. work with less physical activity); Correlation between dress style (closed garments and headscarves) and vitamin D deficiency (OR) = 8.0 95% CI (1.0 -64.1).

Considering the correlation with the above-mentioned issues related to vitamin D deficiency, special attention should be paid to different factors contributing to vitamin D deficiency/ insufficiency in menopausal women, such as the degree of exposure to the sun and various aspects related to it, evaluation and prevention of vitamin D deficiency prevalence.

Keywords: vitamin D, menopausal women, exposure to the sun, physical work, deficiency

РЕЗЮМЕ

ВЛИЯНИЕ РАЗЛИЧНЫХ ФАКТОРОВ НА УРОВЕНЬ ВИТАМИНА D В ПЕРИОД МЕНОПАУЗЫ У ЖЕНЩИН, ПРОЖИВАЮЩИХ В РЕГИОНЕ КВЕМО КАРТЛИ

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Целью исследования явилось определение влияния воздействия солнечного света в период менопаузы на популяцию женщин, проживающих в регионе Квемо Картли, и разработка эффективных профилактических мер с учетом эпидемиологических данных.

Проведено кросс-секционное поперечное исследование. Наблюдались 198 женщин в возрасте 47-54 г., которые не получали пищевые добавки и препараты, содержащие витамин D, в течение последних 2 месяцев. По национальности респонденты распределились следующим образом: грузинки - 108 (55%), азербайджанки - 75 (38%), армянки - 6 (3%), русские - 9 (4%).

Инструментом исследования служила стандартная анкета, в которой, наряду с различными факторами, влияющими на содержание витамина D, определялись демографические показатели. У 99 (50%) женщин скрининг крови на витамин D выполнен поздней осенью, у остальных - весной.

Показатели витамина D в крови в пределах нормы (≥30 нг/мл) выявлены у 47 (24%) респондентов, недостаточность (10,9-29,9 нг/мл) - у 139 (70%) и дефицит (1-10 нг/мл) - у 12 (6%). Среди лиц с дефицитом витамина D в крови 90% – жители города, 77% из них физически активные. Ни у одной из опрошенных осенью женщин, а также работающих на открытом воздухе и у этнических азербайджанок дефицит витамина D в крови не отмечался. Двумерный анализ выявил статистически значимую корреляцию между дефицитом ви-

тамина D и некоторыми факторами риска, в частности вероятность наличия дефицита витамина D в крови весной была в 11 раз выше, чем осенью - отношение шансов (OR)=11.3 95% CI (1.4-90.6); между типом работы (физическая инактивация) и дефицитом витамина OR=3.5 95% CI (1.1-12.6); стилем одежды (закрытая одежда и головные уборы) и дефицитом витамина OR=8.0 95% CI (1.0 -64.1).

Результаты проведенного исследования позволяют заключить, что во время менопаузы особое внимание следует уделять детерминантам уровня витамина D - пребывание женщин на солнце и связанные с этим различные аспекты.

რეზიუმე

სხვადასხვა ფაქტორის გავლენა ქვემო ქართლის რეგიონში მცხოვრები ქალების D ვიტამინის დონეზე მენოპაუზის პერიოდში

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კვლევის მიზანს წარმოადგენდა ქვემო ქართლის რეგიონში მცხოვრებ ქალთა პოპულაციაში მენოპაუზის დროს მზის სხივების ექსპოზიციის გავლენის შესწავლა D ვიტამინის დონეზე და მიზეზ-შედეგობრივი ეპიდემიოლოგიური კვლევის საფუძველზე ეფექტური პრევენციული ღონისძიებების რეკომენდაციების შემუშავება.

ჩატარდა ჯვარედინ-სექციური (პრევალენტობის) კვლევა ქ. რუსთავის მაღალი მიმართვიანობით გამორჩეულ სამედიცინო დაწესებულებებში. საკვლევ პოპულაციას წარმოადგენდა 47-54 წლის ასაკის 198 ქალბატონი,რომლებსაც ბოლო 2 თვის განმავლობაში არ მიუღიათ D ვიტამინის შემცველი პრეპარატები ან კვებითი დანამატები. კვლევის ინსტრუმენტებს წარმოადგენდა სტანდარტული კითხვარი, სადაც D ვიტამინის დონეზე მომქმედ სხვადასხვა ფაქტორებთან ერთად განისაზღვრა დემოგრაფიული მახასიათებლებიც. სისხლში D ვიტამინის სკრინინგი 99 (50%) ქალს ჩაუტარდა გვიან შემოდგომაზე, 99 (50%) - გაზაფხულზე.

სისხლში D ვიტამინის დონე ნორმის ფარგლებში (≥30ნგ/მლ) დაუფიქსირდა 47 (24%) რესპოდენტს, უკმარისობა (10.9-29.9 ნგ/მლ) – 139 (70%) და დეფიციტი (1-10ნგ/მლ) - 12 (6%) რესპოდენტს. სისხლში D ვიტამინის დეფიციტით გამოვლენილთა შორის უმრავლესობა (90%) იყო ქალაქის მაცხოვრებელი, მათგან 77% ფიზიკურ სამუშაოებს ასრულებს. ღია სივრცეში მომუშავე, ეთნიკურად აზერბაიჯანელ და შემოდგომაზე გამოკვლეულ არცერთ რესპოდენტს სისხლში D ვიტამინის დეფიციტი არ დაუფიქსირდა. ბივარიაციული ანალიზით გამოვლინდა სტატისტიკურად სარწმუნო კორელაცია D ვიტამინის დონის დეფიციტსა და ზოგიერთ რისკის-ფაქტორს შორის, კერძოდ, გაზაფხულზე სისხლში D ვიტამინის დონის დეფიციტის არსებობის ალბათობა 11-ჯერ აღემატება შემოდგომისას - შანსების თანაფარდობა (OR)=11.3 95%CI (1.4-90.6); სამუშაოს ტიპს (ნაკლებ ფიზიკურ დატვირთვას) და D ვიტამინის დონის დეფიციტს შორის (OR)= 3.5 95%CI (1.1-12.6); ჩაცმის სტილს (დახურული სამოსის და თავსაფრის მატარებელი პირები) და D ვიტამინის დონის დეფიციტს შორის (OR)= 8.0 95%CI (1.0 -64.1).

ჩატარებული კვლევის შედეგებზე დაყრდნობით ავტორებს გამოტანილი აქვთ დასკვნა, რომ სისხლში D ვიტამინის დეფიციტის ზემოაღნიშნულ ფაქტორებთან კორელაციის გათვალისწინებით განაკუთრებული ყურადღება უნდა გამახვილდეს კლიმაქსის პერიოდში D ვიტამინის დონეზე მომქმედ ისეთ დეტერმინანტებზე, როგორიცაა მზის ქვეშ ყოფნის ექსპოზიცია და მასთან დაკავშირებული სხვადასხვა ასპექტები.

ASSOCIATION OF IL-10 AND RESISTIN IN APPARENTLY HEALTHY ELDERLY POPULATION

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There is a growing body of evidence suggesting that the elderly population is characterized by chronic low-grade inflammation (“inflammaging”), which is may contribute to the development of cardiovascular, autoimmune, cancerous and other medical disorders. Age associated inflammation can be caused by a decrease in the level of IL-10, one of the anti-inflammatory cytokines during aging [2,8]. IL-10 is mainly produced by macrophages and is responsible for suppressing inflammation. It inhibits macrophage activation, antigen presentation and pro-inflammatory cytokine (IL-6, TNF-α, IL-1β) secretion and activation. Moreover, the results of various studies show that IL-10 attenuates the inflammation associated with aging and improves insulin signal and glucose metabolism in skeletal muscle. IL-10 also is involved in pathogenesis of many autoimmune inflammatory diseases such as chronic inflammatory bowel disease, rheumatoid arthritis,