VITAMIN D SERUM LEVELS DURING THE PANDEMIC

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Abstract: The main source of fat-soluble vitamin D in the body, makes its production in the skin after exposure to sunlight, which makes the group of compound close to steroids (ergocalciferol D_2, cholecalciferol D_3, and possible active forms D_4, D_5, D_6, and D_7). These are hormones that are responsible for "absorbing" calcium and phosphorus, which prevents occurrence and development of osteoporosis, protects the skin from damage and infections, maintains the immune system, works on the thyroid gland. The daily adjuvant dose is 2.5 micrograms for adults, up to 10 micrograms for pregnancy and 10-25 micrograms for children. Especially large doses of this vitamin, mainly vit. D3 as the most common component, is needed in winter when sunlight is reduced, with its activist game primary use in shaping hair, will further increase their preservation, healthy teeth in both children and adults. Vitamin D deficiency leads to disrupt the metabolism of calcium and phosphorus in the body so far general bone demineralization, bone pain, muscle weakness, and initial spontaneous fractures. The most severe disorder caused by vitamin D (cholecalciferol) deficiency in children rickets is possible, which is a metabolic bone disease that occurs during growth and because it is ingested with vitamin D when children need to be familiar and regular. Insufficient quantity of vitamin D in menopausal women, in turn, intensifies the process of osteoporosis, so it is necessary risk of fractures. The level (concentration) of vitamin D in the body is determined by measuring the level of 25 (OH) D in the serum. Our retrospective comparative study was conducted based on the effects of serological analysis of vitamin D (calcitriol) levels in the case when 30 adults exercised at the end of March, April and May 2019, from where they split, at the age of 35-65 years old, in relation to the group of 30 examiners, with direct celebration of the children, diagnoses and referrals, in case of a period, spring 2020. at the Institute of Clinical Biochemistry in Skopje. According to the obtained results, and taking into account the current global situation with Covid-19, it can be noticed that the serum level of vitamin D in patients from 2020, if it proves to be evidently lower compared to the previous year, which indicates the need from sunlight, and thus the activation of vitamin D, as a contraindication to quarantine as a measure. Lack of vit. D in the body can be improved by taking an per os for a longer period of time (food, supplements, etc.), so 40-year-old of population regularly need to monitor the serum level of it.
Keywords: vitamin D, Covid pandemic, quarantine, disorders

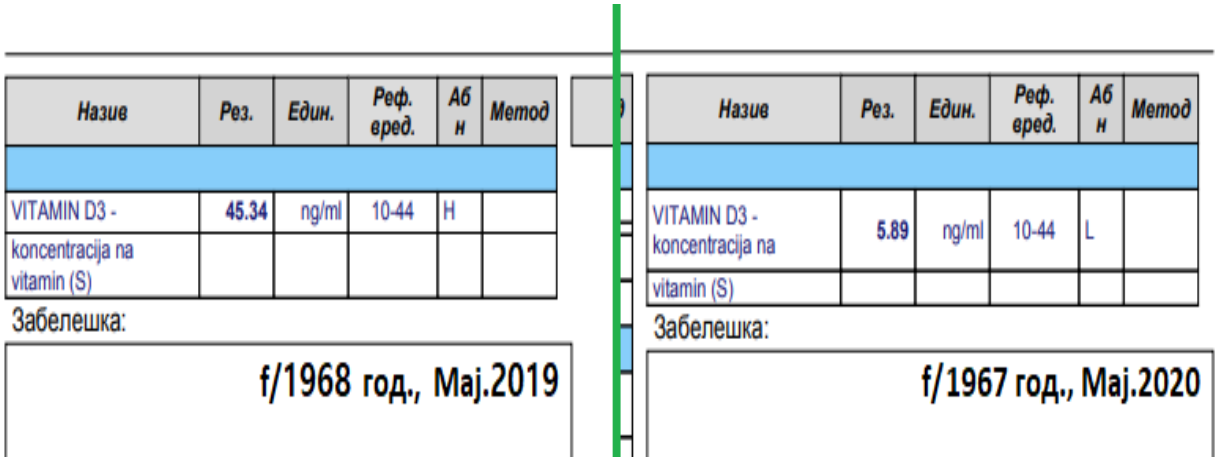
1. INTRODUCTION

Decreased vitamin D levels are a condition that is alarmingly increasing every year, and almost 40% of the total population after 40 years of age has decreased serum levels. Applying our current knowledge of the active form of vitamin D, as a facilitator of immunocompetence and in terms of innate and acquired immunity, we investigated its role in the occurrence of COVID-19 disease.[7] At the same time, the richest sources of vit. D in the diet are fish oil, eggs, milk, yeast and mushrooms, but there are also intriguing potential links to vitamin D as a factor in the cytokine storm, representing some of the most serious consequences of infection with Covid 19, or acute respiratory distress syndrome. Here are also, intriguing potential links to vitamin D as a factor in the cytokine storm, representing some of the most serious consequences of infection with Corona, such as acute respiratory distress syndrome. In addition, the cardiac and coagulopathic characteristics of COVID-19 deserve attention and mandatory routine monitoring of serum levels in the blood, as they may also be associated with vitamin D levels.[8] The study covered the total 60 adult patients, without malignant comorbidities, chronic diseases and relatively active lifestyle, during the spring period 2019 and spring 2020, so that the need and the impact of sunlight on the level of vitamin D, individually, was seen. Both sexes were equally represented, with an average age of over 35 and under 65.[1]

2. METHODS AND RESULTS

800 IU of vit. D per a day should be optimally consumed daily. D, in various forms because higher concentrations are toxic and lower ones are ineffective, or within normal means 10-25 micrograms per liter (or 10-44 nanograms per milliliter). The status of vitamin D in the body is determined by measuring serum 25 (OH) D levels.[5] It is especially recommended to be checked more often in children in intensive growth, as well as in women at the beginning of menopause, due to its participation in the regulation and absorption of calcium and phosphates in the blood, ie osteomyellation.[10] Recent studies on coronavirus infection have suggested a role for vit. D in coagulopathies and complications caused by it, so that's our research, including and the anamnestic data from the patients, in that direction confirmed the significance of the exposure to sunlight, ie the damage from the quarantine measures.[2] Serums vitamin D analyzes were considered of 15 women older than 35 years and younger than 65, for the period in March, April and May 2019, compared with the same/most similar 15 female patients from the same period in 2020. It was evident that with increasing the age, levels of the vit. D decreases (or varies to the lower levels), but compared with the years before and during the pandemic, almost all of them have shown enormously decreased serums concentrations. Anamnestically, they disciplinedly adhered to the measures for personal and collective protection, as well as the quarantine measures during the spring of 2020, so that the exposure to sunlight was minimal, and accordingly vit. D levels too.

Fig.1. Difference in the concentration of vit.D in female patients in May 2019 and May 2020



Назив	Рез.	Един.	Реф. вред.	Аб н	Метод
VITAMIN D3 - koncentracija na vitamin (S)	45.34	ng/ml	10-44	H	

Забелешка:

f/1968 год., Maj.2019

Назив	Рез.	Един.	Реф. вред.	Аб н	Метод
VITAMIN D3 - koncentracija na vitamin (S)	5.89	ng/ml	10-44	L	

Забелешка:

f/1967 год., Maj.2020

In the other half of the respondents, 15 adult men patients of the same age range, for the same period in 2019 and in 2020, who also did not have chronic and/or malignant diseases, generally did not show some significant deviations from the prescribed normal values in the analysis of serum levels of vit.D.

3. CONCLUSION

The declaration of quarantine during the epidemic as a measure for personal and collective protection of the health of the population, proved to be harmful to the level of vit. D, also entirely on the health of the population, due to the absence of exposure to sunlight.

4. PURPOSE

Decreased serum vitamin D levels generally increase the risk of infections due to impaired immune system, and in this period of pandemic further from SARS infection Covid 19.

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