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EVALUATION OF VITAMIN D DEFICIENCY BETWEEN GENDERS IN BAGHDAD/IRAQ

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Abstract:
Even in sunny nations like Baghdad **/**Iraq, vitamin D deficiency is not uncommon. Vitamin D insufficiency is brought on by both inadequate oral supplementation and lack of sun exposure. The objective of this study was to measure the prevalence of vitamin D deficiency between genders and determine the variation of percentage between male and female in Baghdad/Iraq.
The statistical examining of Vitamin D deficiency in 300 patients of different gender are roughly selected in age between (18-80 years) and the data acquired from different private laboratories in Baghdad through 2019 - 2020. They were separated equally in to two groups (male 150 – female 150) and applied a vitamin D test.
They are no large significant differences in both genders but there are slightly high deficiency in vitamin D in females than males (Chi-Square (χ^2) = 14.255 ** females, 13.607 ** males) especially in group (Deficient ≤30) were (89.33% females, 84.00% males).
At the end, our study concludes that a widespread problem is a lack of vitamin D. The serum level of 25-hydroxy vitamin D showed a deficiency with major cause is inadequate sun exposure through (winter, spring, summer and autumn) and other causes are increases in body weight, minimum dietary and supplementary sources intake by (young, adults, and older people) with consuming less milk, having dark skin, using more sunscreen before going out, being housebound, wearing long coats, women having their heads covered for religious reasons.

Keywords: Hypovitaminosis D, deficiency, gender, male, female, Biostatistic

INTRODUCTION:

In terms of the serum level of the pro-hormone 25(OH) D necessary for health, vitamin D sufficiency is described. Lack of sufficient vitamin D is known as vitamin D deficiency and is also referred to as hypovitaminosis D or low vitamin D. Vitamin D is sometimes considered to as the "sunshine vitamin" since it is created by the body in response to sun exposure. It is representing as a public health concern (1, 2, 3, 4).
A family of fat-soluble secosteroids called vitamin D is in charge of boosting the intestinal absorption of calcium, magnesium, and phosphate. In order to ensure optimal synthesis of vitamin D metabolites, doctors recommend between (15 - 30 minutes) of usual daily sunlight exposure without sunblock between (10 am - 3 pm). When the skin is exposed to excessive amounts of vitamin D3, it is dissolved, causing vitamin D toxicity (2, 5, 6, 7).
Contrary to earlier theories, vitamin D plays a more important function in controlling and maintaining both innate and adaptive immune responses. Vitamin D deficiencies can also result in a higher risk of infection, frequent illnesses, body exhaustion, fatigue, muscle weakness, pain and cramping, brittle bones and rickets, Depression, Seasonal Affective Disorder or SAD, heart disease and hypertension. Also responsible for autoimmune conditions such as multiple sclerosis (1, 2, 8, 9, 10).
Vitamin D (25-Hydroxyvitamin D) Unit are: (ng/ml, nmol/l)

MATERIALS AND METHODS:

300 patients in different gender are roughly selected in age between **(18-80 years)** and took from different private laboratories in Baghdad through **2019 - 2020.** They were separated equally in to two groups **(male 150 – female**

150) and applied a vitamin D test by using a device of **FINECARE** FIA system for complete testing of vitamin D. and bring all material to room temperature before use.

STATISTICAL ANALYSIS:

To identify the impact of various factors on research parameters, the Statistical Analysis System application was employed. In this study, a statistical comparison involving percentage (0.05 and 0.01 probabilities) was performed by using the Chi-square test (11).

RESULTS AND DISCUSSION:

Results:

The biostatistics study of 300 patients (150 male and 150 female) showed that the highly significant (P≤0.01) of vitamin D deficiency for male and female, in males the statistic percentage were (84.00 %, 12.67%, 2.67%, 0.67%, 0.00%) for the groups (Deficient ≤30, Insufficient > 30 and ≤ 50, Sufficient > 50 and ≤ 70, Treated cancer and heart disease > 70 and ≤100, Toxic > 100) respectively. And in females the statistic percentage were (89.33 %, 6.67 %, 3.33 %, 0.67 %, 0.00 %) for the groups (Deficient ≤30, Insufficient > 30 and ≤ 50, Sufficient > 50 and ≤ 70, Treated cancer and heart disease > 70 and ≤100, Toxic > 100) respectively.

The highest results of vitamin D deficiency in both males and females were (84.00 %, 89.33%) respectively in group (Deficient ≤30). And the medium result in both males and females were (2.67 %, 3.33 %) respectively in group (Sufficient > 50 and ≤ 70). And the lowest results in both males and females were (0.00% , 0.00%) respectively in group (Toxic > 100).

Lastly, they are no large significant differences in both genders but there are slightly high deficiency in vitamin D in females than males (Chi-Square (χ^2) = 14.255 ** females, 13.607 ** males) especially in group (Deficient ≤30) were (89.33% females, 84.00% males). (Table 1)

Table (1): Results of vitamin D test listed according to groups of males and females

Groups of 25-OH Vitamin D level (nmol/L)		**Male No. (%)**	**Female No. (%)**
Deficient	**≤30**	**126 (84.00%)**	**134 (89.33%)**
Insufficient	**> 30 and ≤ 50**	**19 (12.67%)**	**10 (6.67%)**
Sufficient	**> 50 and ≤ 70**	**4 (2.67%)**	**5 (3.33%)**
Treated cancer and heart disease	**> 70 and ≤100**	**1 (0.67%)**	**1 (0.67%)**
Toxic	**> 100**	**0 (0.00%)**	**0 (0.00%)**
Total		**150**	**150**
Chi-Square (χ^2)		**13.607 ****	**14.255 ****
**** (P≤0.01).**			

DISCUSSION:

The highest results of vitamin D deficiency in both males and females (84.00 %, 89.33%) respectively were in group (Deficient ≤30) and that because only a few foods naturally contain vitamin D, and foods that are enriched with it are frequently unsatisfactory to satisfy male and female, vitamin D deficiency is now acknowledged as a widespread problem , and the main cause is the lack of appreciation that sun exposure in moderation is the major source of vitamin D for most humans, and that agreed with Holick and Chen (12).

The medium result in both males and females (2.67 %, 3.33 %) respectively were in group (Sufficient > 50 and ≤ 70) because of a good check-up of vitamin D test and regulation of food and supplement intake with enough sun exposure, and this approved with project of Institute of Medicine /US (13).

The lowest results in both males and females were (0.00% , 0.00%) respectively in (Toxic > 100) and that because there are no excessive supplementation in male and female, and that fixed with Holick M.F (14).

Lastly, In both genders, serum 25(OH) D are no large significant differences but there are slightly high deficiency in vitamin D in females than males (Chi-Square (χ^2)) (14.255 ** females, 13.607 ** males) especially in group (Deficient ≤30) were (89.33% females, 84.00% males) and that refers due to simultaneous increases in body weight, with consuming less milk, having dark skin, using more sunscreen before going out, being housebound, wearing long coats, women having their heads covered for religious reasons, and all that approved with Holick, Michael F (15).

CONCLUSION:

At the end, our study concludes that a widespread problem is a lack of vitamin D. The serum level of 25-hydroxy vitamin D showed a deficiency with major cause is inadequate sun exposure through (winter, spring, summer and autumn) and other causes are increases in body weight, minimum dietary and supplementary sources intake by (young, adults, and older people) with consuming less milk, having dark skin, using more sunscreen before going out, being housebound, wearing long coats, women having their heads covered for religious reasons.

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