Vitamin D Level Status and Hypertension among Elderly Iraqi People in Al Hillah City

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Abstract

Background: Vitamin D has different biological actions in the body . Vitamin D has the pleiotropic effects in multiple organ systems, and vitamin D deficiency was suggested to be associated with high blood pressure according to previous reports. Several interventional studies have examined the effect of vitamin D supplementation on high blood pressure patients

Objective: To identify Vitamin D level and its correlate with hypertension among old adult in Hilla city – Babylon province.

Keywords: *????.*

Introduction

Vitamin D, 25-hydroxyvitamin D (25(OH) D), is a dynamic fat-soluble vitamin that regulates calcium homeostasis and is important for bone and muscle health in people of all ages [1]. Vitamin D is logically present in some nutrients and dietary supplements and is formed endogenously when sunlight strikes the skin and motivates vitamin D synthesis. Serum concentration of 25-hydroxyvitamin D is the best indicator of vitamin D status in persons, with values of less than 30nmol/L (nmol/L = 0.4 ng/mL) measured to be insufficient for the universal health and wellbeing of adults [2]. A plethora of epidemiological and observational studies have established the correlation between vitamin D and general human wellbeing [(3–5)]. Studies suggest that adequate serum vitamin D of more than 30 nmol/L is concerned in avoiding cardiovascular disease [6] . An sufficient vitamin D serum level has also been informed to improve the immune system, avoid cancer, and limit its development [7]. Vitamin D is an essential part of nutrition. In association to the other vitamins, vitamin D has single metabolic and physiological special effects.[(3–7)] The deficiency of vitamin D is epidemically prevalent in the world; 20–25% of the population suffers from the deficiency of vitamin D in USA; Canada; Europe; Mexico; Asia; and Australia. [8] Surprisingly, the deficiency of vitamin D in the Persian Gulf nations is highly widespread, though there is adequate sunshine. The commonness of vitamin D (serum level of vitamin D) deficiency is upper among female adolescents and elderly in Iran and >80% in Saudi Arabia. Hypertension, also known as raised blood pressure, is a very common chronic disease and considered as a silent killer because it rarely causes symptoms(3). Generally, older age, lower incomes and higher body mass index are proposed as the associated factors with the risk of hypertension 46). Accordingly, people having high blood pressure would increase in the condition of population ageing and prevalent westernized diet in Korean society(16). Therefore, it is very important to look into the evidences and results about vitamin D in regards with its roles in controlling blood pressure at this point.

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Methodology

This was across sectional descriptive observational

study included a non-probability (convenient sample) of elderly in Hilla City.

Babylon province, the period of the study started from the first of January through August 2019, a pretested questionnaire was used to interview the participants after obtaining their verbal consents, the sample included old adult, serum level of Vitamin D that made by chemo immunoassay method (maglumi instrument),The data were analyzed statistically to assess the associations between variables.

Results

The study included 300 participants 83.0% of the study sample had either insufficiency or deficiency of Vitamin D level. The proportion of adults with hypertension were more common among participants with deficient and insufficient vitamin D, 42% and 7% respectively, the difference was significant $p<0.05$.

Table (1) the mean age and number of participations.

Parameter	Number	Mean of the Age
65-69 Years	168	67 years
70 -74 Years	84	73 years
75-80 and More	48	78 years
Total	**300**	

This table shows distribution of study participants according to the mean age and number of participations.

Table (2) Means of vitamin D level by gender.

Female	19.5% ng/ml
Male	25.8% ng/ml
Male and Female	22.5% ng/ml

This table shows distribution of study participants according to the means of vitamin D level by gender.

Figure (2) Means of vitamin D level by gender.

Table (3) Frequency distribution of the study group of age.

Parameter	Frequency	Percentage
65-69	168	56.0%
70 -74	84	28.0%
75-80 and More	48	16.0%
Total	300	100%

This table shows distribution of study participants according to the age.

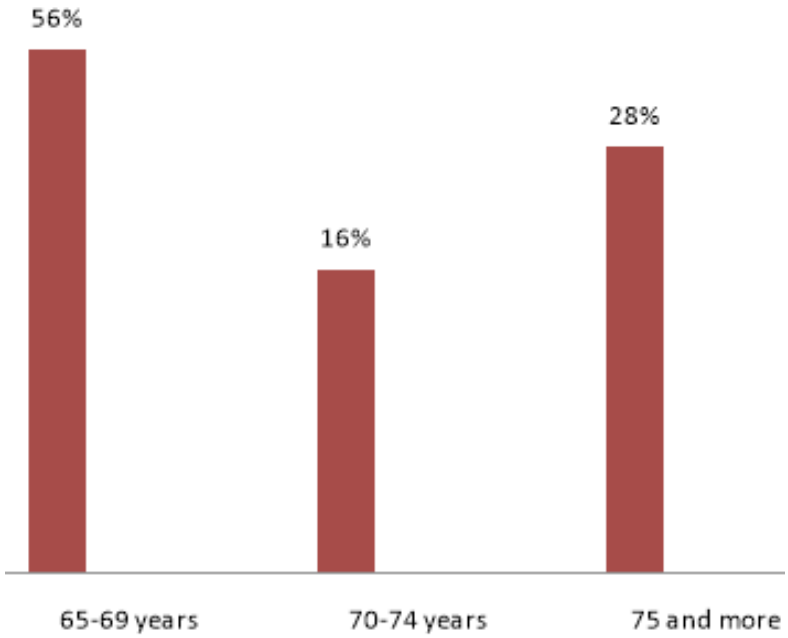

Figure (2) Frequency distribution of the study group by age.

Table (4) Association between Vitamin D Hypertension) among males.

Study Variables	Vitamin D level among male					χ^2	P-value
	Deficiency (0-20 ng/ml)	Insufficiency (21-29 ng/ml)	Normal (30-100 ng/ml)	Total	Deficiency		
Hypertension Yes	37 (54.4%)	5 (26.3%)	2 (15.3%)	44	84.0%	57.99	< 0.002*
No	31 (45.6%)	14 (73.7%)	11 (84.7%)	56	55.3%		
Total	**68 (100.0%)**	**19 (100.0%)**	**13 (100.0%)**	**99**			

This Table shows Association between Vitamin D Hypertension) among males.

Table (5) Association between Vitamin D and Hypertension)among females.

Study variables	Vitamin D level among female					χ^2	P-value
	Deficiency (0-20 ng/ml)	Insufficiency (21-29 ng/ml)	Normal (30-100 ng/ml)	Total	Deficiency		
Hypertension Yes	90 (66.1%)	16 (72.7%)	5 (11.6%)	111	81.0%	59.11	< 0.001*
No	46 (33.9%)	6 (27.3%)	38 (88.4%)	90	51.1%		
Total	**136 (100.0%)**	**22 (100.0%)**	**43 (100.0%)**	**201**			

This table shows Association between Vitamin D and Hypertension)among females.

Discussion

In this study, the Vitamin D Level Status Among Iraqi Patients in Al Hillah City and the relation of these dependent variables to various epidemiological factors were assessed in 300 patents the most of sample are female 67% . The prevalence of vitamin D deficiency in those countries is higher in women than in men It seems that the skin complexion, poor sun exposure, vegetarian food habits and lack of vitamin D food fortification .

In this study most of patients are in the age group 65-69 years this result agree with (Heshmat et al 2008) who found that It was also indicated that vitamin D shortage is highest among individuals who are elderly, institutionalized, or hospitalized. It is recounted that 60% of the old adult in nursing homes were vitamin D deficient in the United States (Elliott et al. 2003).

Findings of relationship between level of vitamin D and hypertension for male and female sample male and female have deficiency in the level of vitamin D (84 %) (81%). This results are agree with (Songcang 2017) who found that vitamin D deficiency is highest among people who have hypertension .

Conclusion: Results of the current study showed a widespread, severe Vitamin D deficiency among participants of both sexes and in elderly people, urgent large scale public educational campaigns are needed to address this high priority public health problem in our society. We suggest that physicians should keep a check on the Vitamin D levels of elderly people in order to curb the ever-increasing incidence of hypertension.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon College of Nursing, Iraq and all experiments were carried out in accordance with approved guidelines.

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