Mini Review
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Prevalence of vitamin d deficiency in local population in urban area in Karachi

Volume 5 Issue 1 - 2017

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Received: August 23, 2017 | **Published:** October 18, 2017

Introduction

To start with vitamin D discussion it is essential to know what it actually is, vitamin D is a precursor hormone which is basically of two forms. Ergocalciferol and Cholecalciferol. Ergocalciferol also famous as vitamin D2 is found in specific fishes and plants on the other hand cholecalciferol also known as vitamin D3 synthesis takes place in the skin in presence of sunlight. For us humans our daily requirements of vitamin D3 can be acquired but taking oral vitamin D3 supplements or simply by being exposed to sunrays for just enough time to produce sufficient amount of vitamin D3 required. It D is in control of calcium absorption in the small bowel, working synergistically with PTH to help with bone mineralization and help maintain homeostasis of calcium in blood. On the other hand many recent studies have suggested strong relationship between low vitamin D levels and various diseases, as it's a good immune modulator and also has anti-inflammatory properties and it's also known to have effect on cytokines levels.[1] It has a very essential role on mortality rates on people undergoing dialysis as it prevents secondary hyperparathyroidism many retrospective studies has proven this fact.[2] There is also a suggestive correlation between low serum vitamin D levels in CKD patient on dialysis and increased mortality rates. Only suggestive correlation not proven otherwise as shown in other studies.[3] There are receptors of vitamin D in smooth muscles of vessels; endothelium cardiomyocytes may have certain effect on CVDs. A relationship between low blood pressure and low vitamin D levels, cardiovascular disease, and coronary artery calcification has been seen in different studies. More than one thousand seven hundred participants from Framingham offspring study examined the levels of incident cardiovascular events and vitamin D levels.[4]

Diabetes and vitamin D

Taking into consideration the latest of studies of humans and animal models, it implies that vitamin D plays a part in homeostasis of the metabolism of glucose and also in development of diabetes mellitus (DM) type 1 and type 2. Link between vitamin D exposure in early stages and development of type 1 DM has been suggested by epidemiologic data.[5,6] Receptors of Vitamin D3 are strong immune-modulating. A few populations develop type 1 DM in association with polymorphisms in the gene of vitamin D receptor.[7,8] Evidence shows there are fewer risks of development of type 1 DM in infants if vitamin D intake is increased.[9]

Osteoporosis and vitamin D

The most found metabolic disease in the world is Osteoporosis. The risk of low vitamin D level can establish it. The active Trans cellular immersion of calcium is decreased by scarce serum vitamin D levels. The latest meta-analysis of random and controlled trials which consisted of more than forty two thousand people, found that the supplementation of vitamin D of more than four hundred daily IU, brought down incidence of non-vertebral fractures a little. The effect was dependent on the dose and was insignificant.

Research and methodology

i. **Location:** Dr. Ziauddin hospital kemari Karachi.

ii. **Sample size:** numbers of patients included.

iii. **Study design:** Cross sectional study, systemically added in the study.

iv. **Data entry and sample technique:** Spss 22 used for data entry. All participate data were entered after having consent.

v. **Inclusion:** Age of the patients was included of group 14 to 70year's old .male and female of both gender were included. All patients visiting outpatient department in residing are were added.

vi. **Exclusion:** Age of the patients less than 13 years and more than 70years were excluded .Any systemic illness like chronic kidney disease, Para-thyroid problem were excluded. Those already on replacement of vitamin d were excluded.

Results

A total number of 664patients coming to the outpatient department enrolled to our study. In study male 510were 164, female were of sample size added for the study. The result showing in the Figure1 below. The percentage of the Age of the patients ranges from 20 age group to 70years .We divided into four groups age group of up to 20years, 20-40years, 40-60years and 60 plus years (Figures 2) (Figure 3). The value of less than 20years of patients were 142patient, 20 to 40years of age were 275 and 40 to 60years were 191patients and more than 60 years of age were 66 patients. In term of percentage the value of less than 20 found in 21patients, the 40.8 found in group of 20-40years, and 28.9 in 40 to 60years of group of patients more than 60years were 9.8 in percent (Figures 4) (Figure 5).

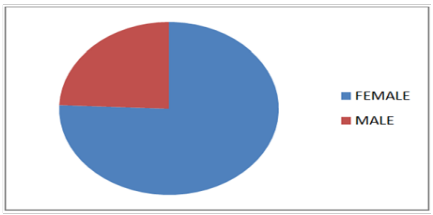

Figure 1 The value of vitamin D ranges from 30-100 levels divided into 4groups.

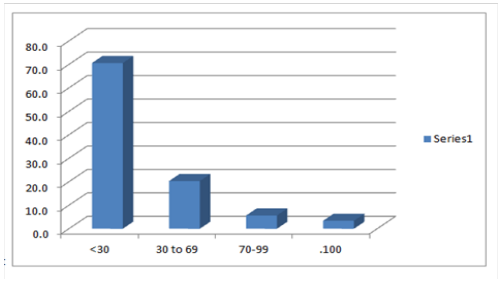

Figure 2 Showing the laboratory findings.

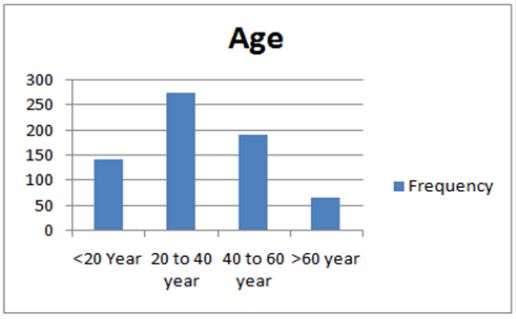

Figure 3 The percentage of the age of the patients ranges from 20 age group to 60years.

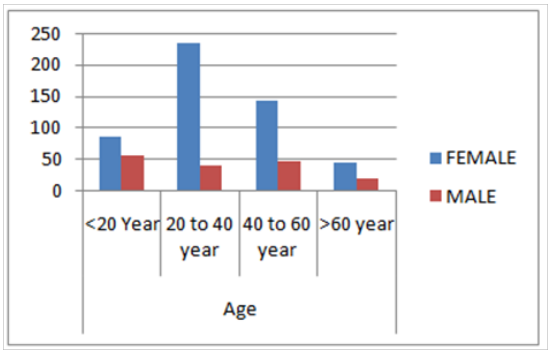

Figure 4 The percentage of the patients having of value less than 30ng/dl was 70.6, 30 to 60ng/dl found in 20.3, 60-90ng/dl in 5.6 percent patient, more than 10ng/dl in 3.4 percent of persons.

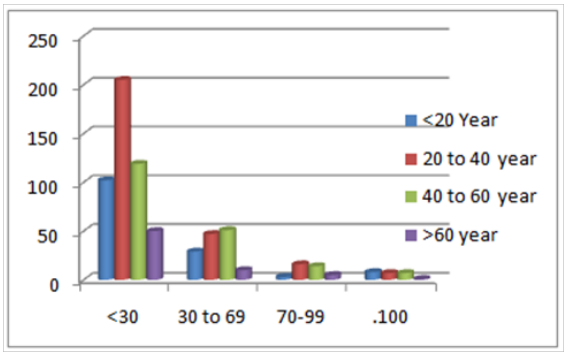

Figure 5 The percentage of the Age of the patients ranges from 30age group to 70years.

Discussion

Even though calcium and vitamin D supplementation combination is linked with high bone mineral density and lessened incidence of fractures in hip, vitamin D supplementation's evidence is not very clear.[10] It is recently found that supplementation on vitamin D at doses of more than seven hundred IU daily caused prevention of bone loss as compared to placebo.[11] On the other hand, vitamin D supplementation with no calcium had no effect on fractures.[11] Also, a review of Cochrane found not so clear evidence that the hip, vertebral, or other fracture rates were affected by vitamin D alone but also supported its use with calcium in frail, nursing home residents for elderly.[12] Many following meta-analysis of trails looking fracture rates and vitamin D deduced that calcium was also vital to bring about a remarkable difference.[13] Vitamin D deficiency is incredibly common and most people are unaware of it That's because the symptoms are often subtle and non-specific, meaning that it's hard to know if they're caused by low vitamin D levels or something else.

Acknowledgements

None.

Conflict of interest

The author declares no conflict of interest.

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Citation: Nawaz S. Prevalence of vitamin d deficiency in local population in urban area in Karachi. *MOJ Surg*. 2017;5(1):157–158.
DOI: 10.15406/mojs.2017.05.00099