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PREVALENCE OF VITAMIN D DEFICIENCY AMONG PREGNANT FEMALES

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ABSTRACT

Vitamin D is a group of fat-soluble vitamin responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and many other biological effects. In humans, the most important compounds in this group are vitamin D3 (also known as cholecalciferol) and vitamin D2 (ergocalciferol). A total of 67 patients presenting in outdoor department of obstetrical department were included in this cross-sectional study. Informed consent was taken. The demographic data of the patients was recorded on a predefined proforma. Vitamin D level were sent to laboratory. Later, the reports were collected from the Lab. All the data was entered and analyzed with SPSS Ver. 22.0. The mean age of the patients was 28.68±2.56 years. The minimum age was 23 years and maximum age was 36 years. Out of 67 patients, 34 patients were in second trimester and 33 were in third trimester of their pregnancy. Twenty-three patients were vitamin D deficient, thirty one had insufficient levels and thirteen patients had optimal vitamin D levels.

KEYWORDS: Vitamin D levels.

INTRODUCTION

Vitamin D is a group of fat-soluble secosteroids responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and many other biological effects. In humans, the most important compounds in this group are vitamin D3 (also known as cholecalciferol) and vitamin D2 (ergocalciferol). The major natural source of the vitamin is synthesis of cholecalciferol in the lower layers of skin epidermis through a chemical reaction that is dependent on sun exposure (specifically UVB radiation). Cholecalciferol and ergocalciferol can be ingested from the diet and from supplements. Only a few foods, such as the flesh of fatty fish, naturally contain significant amounts of vitamin D. In the U.S. and other countries, cow's milk and plant-derived milk substitutes are fortified with vitamin D, as are many breakfast cereals. Mushrooms exposed to ultraviolet light contribute useful amounts of vitamin D. Dietary recommendations typically assume that all of a person's vitamin D is taken by mouth, as sun exposure in the population is variable and recommendations about the amount of sun exposure that is safe are uncertain in view of the skin cancer risk.

Vitamin D from the diet, or from skin synthesis, is biologically inactive. It is activated by two protein enzyme hydroxylation steps, the first in the liver and the second in the kidneys. As vitamin D can be synthesized in adequate amounts by most mammals if exposed to sufficient sunlight, it is not essential, so technically not a vitamin. Instead it can be considered a hormone, with activation of the vitamin D prohormone resulting in the active form, calcitriol, which then produces effects via a nuclear receptor in multiple locations. Cholecalciferol is converted in the liver to calcifediol (25 hydroxycholecalciferol); ergocalciferol is converted to 25hydroxyergocalciferol.

These two vitamin D metabolites (called 25hydroxyvitamin D or 25(OH)D) are measured in serum to determine a person's vitamin D status. Calcifediol is further hydroxylated by the kidneys to form calcitriol (also known as 1,25-dihydroxycholecalciferol), the biologically active form of vitamin D. Calcitriol circulates as a hormone in the blood, having a major role regulating the concentration of calcium and phosphate, and promoting the healthy growth and remodeling of bone. Calcitriol also has other effects, including some on cell growth, neuromuscular and immune functions, and reduction of inflammation.

Vitamin D has a significant role in calcium homeostasis and metabolism. Its discovery was due to effort to find the dietary substance lacking in children with rickets (the childhood form of osteomalacia). Vitamin D supplements are given to treat or to prevent osteomalacia and rickets. The evidence for other health effects of vitamin D supplementation in the general population is inconsistent. The effect of vitamin D supplementation on mortality is not clear, with one meta-analysis finding a

small decrease in mortality in elderly people, and another concluding no clear justification exists for recommending supplementation for preventing many diseases, and that further research of similar design is not needed in these areas. The purpose of this study was see the prevalence of vitamin D deficiency among the pregnant females.[1-4]

MATERIAL OF METHODS

A total of 67 patients presenting in outdoor department of obstetrical department were included in this cross-sectional study. Informed consent was taken. The demographic data of the patients was recorded on a predefined proforma. Vitamin D level were sent to laboratory. Later, the reports were collected from the Lab. All the data was entered and analyzed with SPSS Ver. 22.0.

RESULTS

The mean age of the patients was 28.68±2.56 years. The minimum age was 23 years and maximum age was 36 years. Out of 67 patients, 34 patients were in second trimester and 33 were in third trimester of their pregnancy. Twenty-three patients were vitamin D deficient, thirty one had insufficient levels and thirteen patients had optimal vitamin D levels.

DISCUSSION

Recommendations on recommended 25(OH)D serum levels vary across authorities, and vary based on factors like age. US labs generally report 25(OH)D levels in ng/mL. Other countries often use nmol/L. One ng/mL is approximately equal to 2.5nmol/L.

A 2014 review concluded that the most advantageous serum levels for 25(OH)D for all outcomes appeared to be close to 30 ng/mL (75 nmol/L).

The optimal vitamin D levels are still controversial and another review concluded that ranges from 30 to 40 ng/mL (75 to 100nmol/L) were to be recommended for athletes. Part of the controversy is because numerous studies have found differences in serum levels of 25(OH)D between ethnic groups; studies point to genetic as well as environmental reasons behind these variations. Supplementation to achieve these standard levels could cause harmful vascular calcification.

A 2012 meta-analysis showed that the risk of cardiovascular diseases increases when blood levels of vitamin D are lowest in a range of 8 to 24 ng/mL (20 to 60 nmol/L), although results among the studies analyzed were inconsistent.

In 2011 an IOM committee concluded a serum 25(OH)D level of 20 ng/mL (50 nmol/L) is needed for bone and overall health. The dietary reference intakes for vitamin D are chosen with a margin of safety and 'overshoot' the targeted serum value to ensure the specified levels of intake achieve the desired serum 25(OH)D levels in almost all persons. No contributions to serum 25(OH)D level are assumed from sun exposure and the recommendations are fully applicable to people with dark skin or negligible exposure to sunlight. The Institute found serum 25(OH)D concentrations above 30 ng/mL (75 nmol/L) are "not consistently associated with increased benefit". Serum 25(OH)D levels above 50 ng/mL (125 nmol/L) may be cause for concern. However, some people with serum 25(OH)D between 30 and 50 ng/mL (75 nmol/L-125 nmol/L) will also have inadequate vitamin D
(5-6).

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