

Original Article

Knowledge on Vitamin D Deficiency among Antenatal Women in a View to Prepare Information Guide Sheet

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Abstract :

Vitamin D is essential to maintain bone health, playing a key role in bone mineralization. Severe vitamin D deficiency in children results in rickets. As stores of vitamin D in newborns are dependent on maternal vitamin D status, vitamin D deficiency during pregnancy leads to infant vitamin D deficiency and thus increases risk of rickets.

Objectives: To assess the knowledge regarding Vitamin D deficiency and to find the association of knowledge score and demographic variables.

Materials and Methods: A descriptive approach was adopted for this study. The study was conducted in OBG outpatient department of tertiary Hospital at Mangaluru. The study sample was 100 antenatal women. A knowledge questionnaire was used to collect the data regarding knowledge on vitamin D deficiency.

Result: In this study 65% of antenatal women had average knowledge, 34% antenatal women had poor knowledge and single antenatal women had good knowledge on vitamin D deficiency. The knowledge in the area of complication to the fetus was 38%, knowledge in the other areas were daily requirements 56%, prevention 52% and signs and symptoms 48%.

Interpretation and conclusion: After conducting the study the result showed that, majority of the antenatal women had average knowledge regarding vitamin D deficiency. For further improvement of the knowledge, antenatal women were provided with an information guide sheet (pamphlet).

Introduction

Vitamin D is an essential vitamin to the body, to such an extent that medical professionals call it the "super nutrient". A steroid vitamin which promotes the intestinal absorption and metabolism of calcium and phosphorus.¹ Vitamins are micronutrients required in small quantity for the proper functioning of the body.² Maternal vitamin D deficiency is associated with detrimental effects on the fetus / infant as well as complications for the mother during pregnancy. Fetal and neonatal risks include intrauterine growth retardation, neonatal hypocalcemic seizures, impaired postnatal growth, rickets in infancy and cardiomyopathy and bone mineralization in later life of period.¹ Complications of vitamin D deficiency include Rickets, Osteoporosis, Depression Fatigue, Hyperparathyroidism, Obesity, Osteomalacia, Chronic Backache, Hypertension, cancers, chronic pain, diabetes,

multiple sclerosis or heart disease.³ Lower levels of vitamin D in mother have been associated with increased rates of cesarean delivery, bacterial vaginosis and pre eclampsia as well as less efficient glucose metabolism.^{1,4} Vitamin D receptors in uterine muscle could affect contractile strength, and vitamin D has been shown to have immune modulatory effects, thereby potentially protecting the host from infection.¹ Vitamin D is widely available in the sunlight.^{1,3,5} Foods that contain Vitamin D include oily fish, cod liver oil, egg yolk and liver.² Vitamin D deficiency can be preventable.⁴ Causes for vitamin D deficiency include: use of sun creams, less exposure to sunlight, use of closed clothing's and increased time spent for indoor games.⁴ There are two forms of vitamin D. Vitamin D₃ (cholecalciferol) is produced from the conversion of 7-dehydrocholesterol in skin and vitamin D₂ (ergocalciferol) is produced in mushrooms and yeast. The biologically active

form of vitamin D is 1,25(OH)2D.⁶There is no enough data which supports that all the pregnant mothers should undergo screening for vitamin D deficiency unless they have some of the complications. Also the test is very expensive which cannot be affordable by all the economic groups.⁶Low levels of vitamin D have also been associated with several mental disorders including depression.⁷

Materials and Methods

A descriptive design is used to conduct the study at outpatient department of tertiary hospital at Mangaluru, Karnataka, India from 10/05/2016 to 29/06/2016 consisting of 100 antenatal women.

Inclusion criteria: Antenatal women with age group of above 18 years with 12-40 weeks of gestation were the subjects for the study.

Exclusion criteria: Women who are seriously ill and having psychological problems.

Materials and Methods

Assessment of knowledge regarding vitamin D deficiency was done using a questionnaire. Each correct response was scored as one and wrong answer as zero. The maximum score was 20 and minimum was zero. Along with this the basic proforma was also collected from the respondents. The items in the knowledge questionnaire were divided into sources of vitamin D, daily requirements, factors influencing vitamin D deficiency, signs and symptoms of vitamin D deficiency, Complication to mother and fetus and prevention of vitamin D deficiency.

Results

The following table shows the demographic variables

Table 1 : Distribution of demographic variables in percentage n=100

Sl No	Variables	Categories	percentage
1	Age in years	19-23	40
		24-28	37
		29-33	16
		34-38	7
		>38	0
2	Number of children	One child	38
		Two children	43
		Three children	14
		No children	5

Sl No	Variables	Categories	percentage
3	Education level	No education	15
		Primary	29
		Secondary	29
		Graduate	
		or post graduate	27
4	Working status	Yes	19
		no	81
5	Income per month	4500-6500	33
		6501-8500	36
		8501-10500	21
		>10501	10
6	Type of family	Nuclear	51
		Joint	36
		Extended	13
7	Eating habits	Vegetarian	31
		Mixed	69
8	Daily exposure to sunlight	yes	61
		no	39
9	Exposure time limit	0-15 mins	33
		16-30 mins	24
		>31 mins	4
10	Intake of calcium during pregnancy	Yes	73
		no	27

Overall knowledge of antenatal women regarding vitamin D deficiency

Table 2: Frequency and Percentage Distribution of Subjects According to the Grading of Knowledge Score n=100

Knowledge score	Grading	Range of percentage	Frequency (f)	Percentage (%)
0-7	Poor	<33%	34	34
8-14	Average	34-66%	65	65
15-20	Good	67-100%	1	1

Maximum Score =20

Table 2 : Mean, Mean Percentage and Standard Deviation of Knowledge on vitamin D deficiency among antenatal women n=100

Variable	Max. score	Mean±Standard deviation	Mean %
Knowledge score	20	9.03 ± 3.138	45.15%

Table 3 : Association between knowledge on vitamin D deficiency and demographic variables n=100

Sl No	Variable	≥ median	<median	χ ²	
1	Age in years			0.150	
		19-23	20		20
		24-28	18		19
		29-33	10		6
		34-38	2		5

Sl No	Variable	≥ median	<median	χ^2
2	Number of children			0.686
	One child	18	21	
	Two children	21	22	
	Three children	9	5	
	No children	2	2	
3.	Education			0.18
	No education	4	11	
	Primary education	14	15	
	Secondary education	21	8	
	Graduate or postgraduate	11	6	
4	Working status			0.202
	Yes	12	7	
	No	38	43	
5	Type of family			
	Nuclear	27	24	
	Joint	18	18	
	Extended	5	8	
6	Eating habits			0.017
	Vegetarian diet	21	10	
	Mixed diet	29	40	
7	Sun exposure			0.599
	Yes	21	10	
	No	29	40	
8	Time limit			0.637
	No expose	21	21	
	0-15 minutes	17	13	
	16-30 minutes	11	13	
	31 & above	1	3	
9	Received prior information on vitamin D			0.398
	yes	30	34	
	no	20	16	
10	Source of information			0.383
	Family members	6	7	
	Friends and family	9	12	
	Mass media	10	5	
	Health personnel	19	15	
	Any other	6	11	
11	Calcium intake during pregnancy			0.708
	yes	38	35	
	NO	12	15	

Discussion

Major findings of the study

Description of baseline proforma according to the sample characteristics

Highest percentage (40%) of antenatal women belonged to the age group of 19-23 years, 37% belongs to the age group of 24-27 years, whereas least percentage (7%) comes in the

age group of 34-38 years. Forty three percentages of antenatal women had 2 children, 38% had single child, whereas 5% were primigravida. Similar percentage (29%) of antenatal women was educated till primary and secondary education, but 15% of samples were not having formal education. Majority of antenatal women (81%) were housewives and small population (19%) were working women. 10% were professional workers and 7% were non professional workers.

Half of the samples (51%) belonged to nuclear family, 36% joint family and 13% were having extended family. Most of the antenatal women 69% were consuming mixed diet and 31% were consuming vegetarian diet. Sixty one percentages of antenatal women were exposed to sunlight among that 30% exposed for 0.1-15 minutes, 24% for 16-30 minutes and 39% revealed that they are not exposed to sunlight. Majority of antenatal women (64%) had prior knowledge regarding vitamin D deficiency. Thirty four percentage of population had gained knowledge from health personnel & 22% gained from friends and neighbors. Most of the population (73%) were consuming calcium tablet during pregnancy where as 27% are not consuming calcium tablets.

A systematic review done in Cochrane library using 7 relevant studies infers that there is no enough evidence to evaluate the requirements and effects of vitamin D supplementation during pregnancy. Data collected from 463 women from three trials showed the result in terms of birth weight falling to 2500 grams than those women who received no treatment or on placebo. Although the statistical significance was borderline.⁴

A cross sectional study conducted in Riyadh, Saudi Arabia to assess the knowledge and practice of vitamin D deficiency revealed the following results: Majority of participants (93.1%) knew that vitamin D is essential for bone health. Only 66.3% of the participants revealed that muscle pain related to vitamin D deficiency. However, 48.8% of our subjects believed that vitamin D deficiency is related to other diseases like: cardiovascular, diabetes, depression, hypercholesterolemia, cancer and multiple

sclerosis, versus 14.9% believed there is no relationship exists with the exposure of sunlight and vitamin D synthesis and 36.7% of the participants did not know the relationship at all. It was interesting that majority of participants (89.3%) would like to do vitamin D test.⁵

Overall knowledge of antenatal women regarding vitamin D deficiency

The present study results showed that 56% of the samples are aware of daily requirements, 52% of the samples have knowledge on prevention of complications, 48% of samples are aware of the signs and symptoms and sources, where as the knowledge regarding complication to mother and fetus were 42% and 38%.

Association between knowledge on vitamin D deficiency and demographic Variable

There is no association found with demographic variables and knowledge score except with eating habits ($p=0.017$), hence null hypothesis is accepted. Chi square test was used to identify the association of knowledge on vitamin D and demographic variables. Calculated p value was greater than 0.05 except for eating habits, which indicated no association between vitamin D deficiency and demographic variables.

Summary

The findings of this study and other studies show that antenatal women are having limited knowledge on vitamin D deficiency.

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