

Frequency of Vitamin "D" Deficiency in Pregnant Women

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ABSTRACT

Aim: To determine the frequency of vitamin D-3 deficiency in pregnant women presenting in OPD of a tertiary care hospital.

Study design: Cross-sectional, observational study

Place and duration of study: Department of Obstetrics and Gynecology, DHQ Teaching Hospital, Gujranwala from 1st November 2018 to 30th April 2019.

Methodology: One hundred and eighty pregnant women aged between 18-40 years having a singleton live fetus above 24-weeks of gestation were included.

Results: The mean age of the patients was 27.94±5.52 years and mean gestational age was 30.07±4.07 weeks. Most 91 (50.6%) of the patients were para 2 followed by para 3(26.7%), para 1 (14.4%) and primiparas (8.3%). 149 (82.8%) patients had vitamin D deficiency.

Conclusion: The frequency of vitamin D deficiency was observed to be 82.8% among pregnant women presenting in OPD of a tertiary care hospital. The frequency of vitamin D deficiency was significantly higher among younger females and those with early pregnancy. However, there was no significant difference in the frequency of vitamin D deficiency among women with different parity.

Keywords: Gestational age, maternal age, pregnancy, Vitamin-D3 deficiency

INTRODUCTION

Vitamin D is a crucial fat-soluble vitamin for both children and adults that modulates the metabolism of calcium. Because the demand for calcium is increasing in the third trimester of pregnancy, the condition of vitamin D is essential for maternal health, foetal skeletal growth and excellent maternal and foetal outcomes.

Vitamin D is active in 25-OH-cholecalciferol, which in clinical practise is generally called vitamin D-3, which is clinically measured⁴. The deficiency of vitamin D is associated with poor bone growth for a long time and is known as a source of rickets. The prevalence and additional effects of low serum vitamin D in pregnancy were not known until recently, even though the incidence of vitamin D decreased with today's regular recommendations.

Serum vitamin D measurements during pregnancy helped researchers define prevalence of vitamin D deficiency and elucidate maternal and foetal adverse outcomes linked to vitamin D, for example the growing risk of preeclampsia, tolerance to insulin and diabetes. In addition , experimental results also anticipate that vitamin D adequacy is necessary for the development of foetuses in particular for the development of the foetal brain and immune functions. In many trials, birth weight was also correlated with neonatal vitamin D intake⁷ and low birth weight in infants. Therefore vitamin D deficiency in pregnancy may not only interfere with the preservation of mother's skeletal and the development of foetal skeletons, it may be also necessary for foetal impression that can influence the susceptible chronic diseases early after birth and later in life.

Therefore, during their first prenatal visits all women should know about the value of vitamin D during pregnancy for their own health and the health of the baby so that they have a proper vitamin D body during their pregnancy and during breast feeding.

Studies have recorded a prevalence ranging from 18% to 11 42% to 12-84%¹³, depending on the home country and the traditions of clothing at the local level . Studies performed at national level indicate that 87%–98% of gravitational patients have vitamin D deficiency. 14-16 Vitamin D deficiency is worldwide.

One research measures that 13 (23 percent) women who were multivitamin D deficient, and a mean sun exposure period of 0.76±0.71.17, in a second study, 50.7 percent women who took a vitamin D supplement during pregnancy have found vitamin D deficiency¹⁸.

This study intends to find out the frequency of vitamin deficiency among pregnant women of Gujranwala District, thereby highlighting the need of policy making towards Vitamin D3 supplementation for pregnant population of our country.

MATERIALS AND METHODS

This cross-sectional study was conducted at Department of Obstetrics and Gynecology, DHQ Teaching Hospital, Gujranwala from 1st November 2018 to 30th April 2019 and comprised 180 pregnant women. Women age between 18-40 years, women having viable fetus and gestational age more than 24 weeks, singleton pregnancy and any parity were included. Those pregnant women having history of chronic renal disease, liver disorder, PIH, GDM, twin gestation and taking anti-tuberculous therapy, findings of miscarriage were excluded. Maternal blood samples were collected in hospital laboratory for measurement of 25 hydroxy vitamin-D levels by Elecsys Method on Roche

Received on 30-04-2020

Accepted on 17-08-2020

cobas e 411, and laboratory reports were reviewed. Women having 25 OHvit-D3 levels <25ng/ml were marked as vitamin D deficient was recorded. The data was analyzed using SPSS-20.

RESULTS

Seventy two (40%) of the patients were in the age group 25-31 years followed by 18-24 years (30%) and 32-38 years (30%) with mean age was 27.94±5.52 years. Seventy two patients had gestational age between 29-33 weeks, followed by 66(36.7%) between 24-28 weeks and 42(23.3%) between 34-37 weeks with mean gestational age was 30.07±4.07 weeks. Most 91 (50.6%) of the patients were para 2 followed by para 3(26.7%), para 1(14.4%) and primiparas15 (8.3%). One hundred and 49(82.8%) of the patients had vitamin D deficiency (Table 1).

Table 1: Demographic information of the patients

Variable	No.	%
Age (years)		
18 – 24	54	30.0
25 – 31	72	40.0
32-38	54	30.0
Gestational age (weeks)		
24 – 28	66	36.7
29 – 33	72	40.0
34 – 37	42	23.3
Parity		
Primiparas	15	8.3
Para 1	26	14.4
Para 2	91	50.6
Para 3	48	26.7
Vitamin D deficiency		
Yes	149	82.8
No	31	17.2

DISCUSSION

The frequency of vitamin D deficiency was observed to be 82.8% among pregnant women presenting in OPD of our tertiary care hospital. This is much higher than that found in Malaysian women by Woon is (42.4%)⁴. However findings relate well with those of Shrestha et al¹⁶ in Nepali women, number being 81%. This highlights greater prevalence in South Asia, with poverty and poor nutritional intake as well as reduced sun exposure owing to cultural factors as a possible contributor. The frequency of vitamin D deficiency was significantly higher among younger females (p=.012) and those with early pregnancy (p=.032). However, there was no significant difference in the frequency of vitamin D deficiency among women with different parity (p=.766). Present study has highlighted higher frequency among young maternal age. On the basis of this finding, it is advisable to prescribe vitamin D supplements in pregnant women who present to Obstetrics and Gynecology OPD in routine particularly to younger patients and those with early pregnancy.

Among various supplementation strategies, Bokharee et al¹⁹ suggested 5000iu stat dose as a viable option which should be explored further.

CONCLUSION

The frequency of vitamin D deficiency was observed to be 82.8% among pregnant women presenting in OPD of a tertiary care hospital. The frequency of vitamin D deficiency was significantly higher among younger females and those with early pregnancy. However, there was no significant difference in the frequency of vitamin D deficiency among women with different parity. Viable and cost-effective solutions to nutritional supplementation need to be explored while also ensuring safety of women and the developing fetus.

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