

## Vitamin D Deficiency In Expectant Mothers Attending A Tertiary Care Hospital In Southern Odisha.

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### ABSTRACT

In addition to being a lipid-soluble vitamin, vitamin D is also a steroid hormone that the skin can produce on its own when exposed to sunlight. A lack of vitamin D is linked to a number of health problems, including impaired immune function, an increased risk of cancer, diabetes, cardiovascular disease, rheumatic disease, muscle weakness, chronic pain, and neuropsychiatric disorders. Vitamin D insufficiency is frequent during pregnancy, particularly in high-risk populations such as vegetarians, women who live in cold climates or northern latitudes, wear clothing that protects them from the sun, and ethnic minorities, particularly those with darker complexion. It is a significant risk factor for low foetal growth, neonatal development, and infantile rickets. Furthermore, vitamin D deficiency may put expectant mothers at risk for preeclampsia and gestational diabetes. The purpose of this study is to assess the incidence of vitamin D insufficiency in Jammu and Kashmir, a state in northern India. A total of 120 pregnant women had their levels of vitamin D (25-OH D) checked; of them, 52 (43.3%) had levels below 20 ngm/ml, 41 (34.1%) had levels between 20–30 ngm/ml, and 27 (22.5%) had levels over 30 ngm/ml. The study undercuts the need for more research in this field by demonstrating the startlingly high frequency of vitamin D insufficiency among pregnant women who were otherwise in good health.

### INTRODUCTION

The main sources of fat-soluble vitamin D include sunshine exposure, fortified milk and juice, fish oils, and dietary supplements. The liver hydroxylates vitamin D that is endogenously synthesised in the skin to create Hydroxy Vitamin D (25-OH-D). Because of its longer half-life, 25-OH-D is regarded as the best biomarker of vitamin D status. The kidney then uses the 1-alpha enzyme to metabolise 25 OH-D.

hydroxylase to create 1, 25-dihydroxy vitamin D, the active steroid hormone. The fact that vitamin D receptors are found in most organs, including the placenta, indicates that vitamin D may play other functions. Sufficient consumption of vitamin D is linked to a decreased risk of cardiovascular disease and cancer (1, 2, 3, 5, 6). diabetes (8), neurological illness (7), and autoimmune disease (7). Furthermore, A growing body of research indicates that vitamin D insufficiency during pregnancy is linked to a number of unfavourable health outcomes for moms, including type 1 diabetes, poor bone mineral density, wheezing in newborns, gestational diabetes, preeclampsia, and childhood eczema.(9,10)

Concern over the potential health effects of the high global incidence of vitamin D insufficiency in the general population, especially pregnant women, is rising. In other regions of the world, vitamin D deficiency is a prevalent condition. This study was conducted with the intention of conducting a random sample survey on the vitamin D status of pregnant women living in the mountainous state of Jammu and Kashmir because there aren't many studies on this topic in this region of the nation.

## **MATERIAL AND METHODS**

Under the MKCG MCH, Berhampur the National Health Mission, Odisha supported the study by offering free diagnostic services to all pregnant patients at the government-run facility. The vitamin D (25-OH-D) status of 120 pregnant patients at MKCG MCH, Berhampur was assessed. With each pregnant woman's consent, a blood sample was taken from the antecubital vein in an aseptic setting, in accordance with hospital policies and procedures. The serum was then used to measure the vitamin D level using an Abbott Architect chemiluminescent microparticle immunoassay(11).

A severe vitamin D insufficiency was defined as having a 25 OH-D level of 20 ngm/ml (less than 50 nmol/L). A level of 20–30 ngm/ml was believed to be the cutoff threshold.(50 to 75 nmol/L) are considered levels of insufficiency, whereas values beyond 30 ngm/ml (>75 nmol/L) indicate sufficiency in vitamin D. The vitamin D status of 120 pregnant women in the first trimester of their pregnancy was examined. This study excluded women who had a history of diabetes mellitus, thyroid disorders, hypertension, cardiovascular disorders, metabolic bone disorders, or hyperparathyroidism. The outcomes were examined using accepted statistical methods.

## **RESULTS**

One hundred and twenty-one pregnant women were screened for vitamin D (25 –OH–D). Of these, fifty-two (43.3%) had vitamin D levels below 20 ngm/ml; their mean level was 11.2 ngm/ml; forty-one (34.1%) had levels between 20 and 30 ngm/ml; their mean value was 25.6 ngm/dl; and twenty-seven (22.5%) had levels above 30 ngm/ml. Vitamin D levels in pregnant women ranged from 2.8 ngm/ml to 71.7 ngm/ml, with the lowest and highest values recorded. The study also showed that, in comparison to young expectant women, the incidence and severity of vitamin D deficiency increased with mother age.

## **DISCUSSION**

The study found that among pregnant women who were generally in good health, vitamin D insufficiency was alarmingly common. Pregnant women worldwide are experiencing an epidemic of vitamin D insufficiency; several studies have shown prevalences ranging from 18 to 84%, depending on the nation of residency and regional norms. In this investigation, the blood levels of 120 expectant mothers were assessed for vitamin D (25-OH-D) and 93 (77.5%) of them had inadequate amounts of the vitamin. El Koumi et al.'s study from 2012 revealed similar findings, stating that only 35.8% of pregnant women had blood levels higher than 20 ng/ml. Another research was out in India discovered that 84% of pregnantWe found that women had a vitamin D concentration of less than 22.5 ngm/ml(13). Research carried out in different regions of the world has also demonstrated that several European nations have high incidence of vitamin D insufficiency (25–OH-D, < 20 ngm/ml)(14).

Women with 25(OH) D levels <15 ngm/ml exhibited a five-fold increase in the risk of preeclampsia. Vitamin D insufficiency at or before 22 weeks of gestation has been described as an independent predictor of preeclampsia. In 3–10% of cases, preeclampsia and hypertensive disorders exacerbate

maternity and neonatal morbidity and mortality are greatly influenced by pregnancies (15). It is obvious that the existing guidelines for vitamin D in pregnancy are not enough to prevent vitamin D deficiency in pregnancy, much alone treat it. Nonetheless, two recent randomised controlled studies on vitamin D supplementation during pregnancy indicate that a safe daily dosage is between 2000 and 4000 IU (16, 17).

In order to prevent preterm delivery or preeclampsia, it might be advised that all pregnant women maintain blood levels of 25 OH-D in the normal range of adults (>32 ng/ml) with the easy, affordable, and low risk of toxicity that comes with vitamin D supplementation.

## CONCLUSION

Deficiency of vitamin D is a frequent problem among expectant mothers. When there is even the smallest possibility that a pregnant woman may be deficient in vitamin D, early preventative action should be taken to minimise morbidity during pregnancy and breastfeeding, as well as the ensuing effects on the foetus, the newborn, and the kid. To support the advice that all pregnant women be screened for vitamin D insufficiency, more research is required.

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