

Vitamin D levels in pregnant women and its association with fetomaternal outcome

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Objective

To estimate the levels of Vitamin D in healthy women with singleton pregnancies up to 32 weeks of gestation attending a tertiary care centre of western Uttar Pradesh, India and its association with fetomaternal outcomes.

Design

This prospective observational cohort study was conducted in the Obstetrics and Gynaecology department at LLRM Medical College, Meerut, Uttar Pradesh, India, from May 2018 to October 2019, after clearance from Institutional Ethical Committee.

Method

A total of 700 women with singleton pregnancies upto 32 weeks of gestation were recruited. Women with known medical disorders like diabetes, hypothyroidism, hyperparathyroidism, chronic hypertension, ovarian tumor, collagen disorders, pulmonary illness or those taking medications known to influence calcium or vitamin D levels were excluded. Vitamin D levels were measured at booking using ARCHITECT 25(OH) Vitamin D Assay. All women were followed till delivery in a routine manner.

Stages were defined according to the Endocrine Society recommendations, as -

Severe vitamin D deficiency –levels <10 ng/mL, Vitamin D deficiency –levels 10-20 ng/mL, Vitamin D insufficiency – levels 21-29 ng/mL, Vitamin D sufficiency – levels 30-149 ng/mL, Vitamin D toxicity – levels >150 ng/mL.

The data were analysed by using SPSS Version 21. The association between qualitative dependent and outcome variables was analysed by using Chi square test. The strength of association was calculated by odds ratio. For the relation of quantitative dependent and outcome variables student 't' test was applied. A p-value of less than 0.05 was taken as significant.

Results

The mean 25(OH)D was 15.29 ng/mL. Prevalence of severe vitamin D deficiency, deficiency insufficiency, and sufficiency were 35%, 49.5%, 10.2%, 4.7% respectively. Only 654 women were assessed as 46 women (7%) were lost to follow up. The incidence of gestational hypertension, preeclampsia, gestational diabetes mellitus, anaemia, preterm birth, antepartum haemorrhage and postpartum haemorrhage - was 1.07% (7 cases), 3.36% (22), 0.3% (2), 6.88% (45), 0.76% (5), 0.61% (4), 1.225 (8) respectively. Mode of delivery was vaginal in 92.05% and cesarean in 7.95% women. No association of vitamin D levels was seen with adverse pregnancy outcome (p value>0.05).

Conclusions

Even though only 4.7% women in this cohort of otherwise healthy pregnant women had sufficient levels of Vitamin D, the vitamin D levels did not appear to result in adverse fetomaternal outcomes. Further studies are needed to prove or disprove any association between vitamin D level and its effect on maternal or fetal health.