

POSTPARTUM VITAMIN D DEFICIENCY AND ITS RELATIONS WITH SOCIODEMOGRAPHIC FACTORS

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Introduction:

- Deficiency of Vitamin D or 25(OH) cholecalciferol, is severe health problem all over the world affecting around 1 billion people ((1,2).
- Calcium and bone metabolism, protecting against various autoimmune disorders, cardiovascular diseases, chronic infections, cancers and even infertility(3,4).
- Pregnancy- deficiency- preeclampsia, gestational diabetes, preterm birth, intrauterine fetal growth restriction (5-7).
- Deficiency in infants- rickets, respiratory infections, allergic diseases, heart failure(8,9).

- Synthesis of vitamin D – endogeneously, by exposure of Ultraviolet B radiation affected by factors like nutritional status, fat composition of diet, vitamin and minerals supplements, frequency of sun exposure, color of skin, application of sun protecting emollients on exposed skin(10).
- high sun exposure country like India- mean prevalence rate of vitamin D deficiency in overall population is around 70-90% including pregnant women and their infant(11).
- Vitamin D content of breast milk directly correlates with 25(OH)D status of mother(12).
- Currently, large number of literature points towards deficiency of vitamin D and its effects on pregnancy and fetus but till date no recommendation has been made for supplementation of vitamin D in pregnancy or in postpartum period.

- **AIMS AND OBJECTIVE:**

- To investigate the prevalence of vitamin D deficiency in postpartum period and to study its relation with the sociodemographic characteristics of the patients.

MATERIAL AND METHODS:

- Cross sectional observational study
- Site:Obgy department of the Datta Meghe Medical College and Shalinitai Meghe Hospital and Research centre, Nagpur
- Duration:1 year(1st April 2020- 31st March 2021)
- Inclusion criteria:
 - ✓Willing to give consent
 - ✓Delivered in our hospital
 - ✓>37 weeks of gestational age

- Exclusion criteria:
 - ✓ Patients not willing to give consent
 - ✓ gestational age < 36+6 weeks at the time of delivery
 - ✓ Patients having endocrinological, rheumatological and renal disorder
 - ✓ Patients on medications like diuretics, antihypertensive or steroids, which interfere with the metabolism of vitamin D
- Detailed history was taken, including age, parity, education, job profile and other sociodemographic characters.
- Blood sample was drawn from 48-72 hours post delivery and serum concentrations of vitamin D in form of 25(OH)D measured.
- Deficiency of vitamin D is defined as serum 25OHD < 50 nmol/L.
- It can be classified as moderate when serum concentration goes below 25 nmol/L and severe when it further lowers below 12.5 nmol/L.(13)

Results:

The mean plasma concentrations of 25(OH)D in postpartum patients was 27.6ng/mL with a range from 8.2ng/mL to 56.4ng/mL.

			vitamin	D	concen	tration
Variables		No. of patients (550)	>50nmol/L (12) 2.18%	25-50 nmol/L (256) 46.54%	25-12.5 nmol/L (230) 41.81%	<12.5 nmol/L (52) 9.45%
Age:	=<25 years	178(32.36%)	7	121	35	15
	25-35 years	292(53.09%)	4	132	126	30
	>35 years	80(14.54%)	1	3	69	7
Parity	Primi	386(70.18%)	10	148	110	16
	Multi parous	164(29.18%)	2	108	120	36
Education	Less than 10 th	104(18.9%)	4	50	25	25
	Till graduation	410(74.54%)	6	186	197	21
	Postgraduation	36(6.54%)	2	20	8	6

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Working	Nonworking	357 (64.9%)	6	128	186	37
	Working:					
	Indoor activity:	123	2	86	23	12
	Outdoor activity:	70(1.27%)	4	42	21	3
Residence	Periurban:	319(58%)	4	118	169	28
	Rural:	231(42%)	8	138	61	24
Antenatal visits	Booked:	226(41.09%)	10	140	54	22
	Unbooked:	324(58.90%)	2	116	176	30
Type of delivery	Vaginal delivery:	272(49.45%)	5	126	113	28
	Cesarean section:	278(50.54%)	7	130	117	24

Discussion

- In our study, prevalence of vitamin D deficiency in postpartum patients is very high i.e. 97.8%
- In the study of Martin et al, prevalence of vitamin D insufficiency was 74%(14) and in the study of K. I. Mohammad, et al, deficiency and insufficiency of vitamin D was seen in 76% and 24% respectively in puerperae(15).
- High prevalence of vitamin D deficiency- due to lower body exposure to sun due to traditional and modest pattern of clothing covering almost whole body, less outdoor activity, dietary calcium deficiency, and skin pigmentation
- In a systematic review by Saraf et al, the prevalence of vitamin D deficiency was 54% in pregnant women and 75% in newborns(16)
- No significant association between vitamin D concentration and sociodemographic variables-seen in our study but it definitely proves the higher prevalence and emphasizes the need for urgent intervention.

Conclusions:

- Higher prevalence of deficiency of vitamin D in postpartum patients of India despite having abundant sunlight.
- No association with the sociodemographic factors, studied.
- Further studies are required to identify the various risk factors for vitamin D deficiency and to evaluate its effect on pregnancy outcome and neonate.
- However, our study identifies the need of supplementation of vitamin D in pregnancy and postpartum and to be followed routinely in hospital protocol of obstetric management.

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THANK YOU