

Vitamin D in Pregnancy Protocol

Background: Vitamin D deficiency is defined by most experts as a 25(OH) Vitamin D level of less than 20 ng/ml, with a level of 21-29 ng/ml categorized as relative insufficiency (as parathyroid hormones are suppressed and intestinal calcium transportation decreased at these levels). However, levels greater than 50 ng/ml are needed to decrease risk of breast and colon cancers.

Vitamin D deficiency is very common in pregnant women, with overall rates higher in African American and Hispanic populations. One study showed 73% of pregnant and lactating women and 80% of their infants were found to be vitamin D-deficient at the time of birth despite a majority taking prenatal vitamins, eating fish and drinking milk.

Maternal Vitamin D deficiency is the most important factor in vitamin D levels in infants. At birth, the infant's 25(OH) D level is 60-75% of mother's level. Vitamin D deficiency confers a host of risks to the neonate/infant including: *IUGR, premature labor, preeclampsia, cesarean section (women with levels less than 15 ng/ml have four times the odds of C-sections than women who are not deficient⁴), rickets, short stature, hypocalcemic seizures/tetany, delayed developmental milestones, childhood wheezing illnesses, type 1 DM, multiple sclerosis, osteomalacia and osteoporosis and fractures.*

Pregnancy and lactation is a high-risk state for vitamin D insufficiency/deficiency due to fetal utilization and inadequate sun exposure.

Vitamin D intoxication is extremely rare, but can be caused by inadvertent or intentional ingestion of excessively high doses. No cases of Vitamin D intoxication have been seen with serum levels less than 150-200 ng/ml and daily doses of up to 10,000 IU Vitamin D2 for up to 5 months do not cause toxicity.

PLAN:

Check 25(OH) Vitamin D at OB intake in all pregnant women. (Currently on Intake labs).

Supplementation/Replacement Plan:

- If the 25(OH) Vitamin D level is less than 20 ng/ml, start supplementation with Vitamin D3, 50,000 IU every week for 8 weeks. Recheck after 8 weeks.
- If the Vitamin D level is 20-30 ng/ml start supplementation with Vitamin D2, 4000 IU every day, recheck after 8 weeks.
- If Vitamin D level is 30-50 ng/ml start supplementation with Vitamin D2, 2000 IU per day, recheck after 8 weeks.

If Vitamin D level is greater than 50, continue current supplementation, (prenatal vitamin plus Vitamin D 1000 IU at a minimum), recheck with 28 week blood draw.

Follow these same recommendations for Vitamin D levels at recheck.

Recheck at postpartum visit, adjust supplementation/replacement as needed.

Start all newborns on Vitamin D 400 IU/day beginning in the first few days of life.

References:

- Bodnar et. al. Journal of Clinical Endocrinology & Metabolism 2007,
- Holick, "Vitamin D Deficiency", New England Journal of Medicine, vol. 357, no. 3, July 19 2007.
- Merewood and Holick, Journal of Clinical Endocrinology & Metabolism, 2009.
- Wagner, et al. "Prevention of Rickets and Vitamin D Deficiency in Infants, Children and Adolescents", Pediatrics, Vol. 122, No 5, November 2008.