

Maternal Vitamin D Level and Rate of Primary Cesarean Section

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ABSTRACT

Background: Vitamin D deficiency has been a worldwide health problem, and pregnant women were considered as a high risk group among whom the prevalence of vitamin D deficiency is increasing to be around 5-40% and to reach a rate of 10-56% in breastfed infants. Recent studies revealed the importance of vitamin D during pregnancy and correlated its level to several pregnancy and neonatal outcomes.

Objectives: We aimed to assess the effect of low level of maternal vitamin D on the progress of labor affecting primary C-section rate, pregnancy outcomes (such as: Risk of uterine atony and postpartum hemorrhage, pregnancy induced hypertension, preeclampsia and gestational diabetes) and neonatal outcomes (such as: Low birth weight and preterm birth).

Methods: A prospective cohort study was conducted in two university hospitals in Lebanon between September 2016 and January 2017. A questionnaire was used for collecting data after taking informed consent to participate in the study. Demographic data, calcium intake, vitamin D intake including the dose, obstetric history complicating the current or previous pregnancy, mode of delivery and finally maternal and neonatal outcomes were recorded. Blood samples were collected from all patients participating in the study for vitamin D level measurement. Patients were divided in two groups: the control group (vitamin D level >30ng/ml) and the deficient group (\leq 30ng/ml).

Results: A total of 381 patients were included in this study. In total, 40.9% of the deficient group delivered by C-section for failure of induction, failure to progress or failure to descend; compared to 12.8% only of the control group (p value <0.0001). There was also a significant association between vitamin D deficiency and risk of uterine atony and postpartum hemorrhage (4.7% and 5.6%, respectively in the study group with low level of vitamin D compared to 0.7% and 1.3% in the control group with significant p value 0.033 and 0.040, respectively).

Conclusion: Low maternal vitamin D level was associated with increased risk of primary C-section, uterine atony and postpartum hemorrhage.

Keywords: Vitamin D deficiency, Primary C-section, Uterine atony, Postpartum hemorrhage, Pregnancy outcomes, Birth weight, Preterm delivery, Pregnancy outcomes

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