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Increased Primary Cesarean Section Rates With Vitamin D Deficiency

NEW YORK (Reuters Health) Jan 08 - Primary cesarean section rates are higher among women with vitamin D deficiency, according to new research.

Maternal calcium status is likely to play a role in preterm labor and in the initiation of labor, the authors explain in an article published online on December 23 by The Journal of Clinical Endocrinology & Metabolism, but whether vitamin D status is associated with primary cesarean section rates has not been studied.

Dr. Michael F. Holick from Boston University School of Medicine and colleagues assessed the relationship between infant and maternal vitamin D status (as indicated by serum 25-hydroxyvitamin D level) at birth. They enrolled 253 women in the 2-year study.

Twenty-eight percent of women with 25-hydroxyvitamin D levels below 37.5 nmol/L had a primary cesarean section, the authors report, compared with only 14% of women with higher vitamin D levels ($p = 0.012$).

The median serum vitamin D levels were also significantly lower among women who had primary cesarean sections (45.0 nmol/L) than among women who delivered vaginally (62.5 nmol/L).

In multivariate logistic regression analysis, women with vitamin D deficiency (levels below 37.5 nmol/L) were 3.84 times as likely as women without vitamin D deficiency to undergo a primary cesarean section.

Primary cesarean sections were also significantly more common among White/non-Hispanic women than among Black and/or Hispanic women, among women born in the U.S. than among those born elsewhere, and among women who used alcohol in pregnancy than among those who did not, the researchers note.

"Since vitamin D is critically important for the maintenance of calcium homeostasis," the investigators say, "it is possible that vitamin D deficiency, which causes a slight lowering of the serum calcium, is related to both skeletal muscle and smooth muscle strength and may play a role in initiation of early labor."

"A randomized trial is now needed to determine if adequate vitamin D supplementation during pregnancy to raise blood levels of 25-hydroxyvitamin D above at least 37.5 nmol/L can reduce the cesarean section rate and whether increasing it above 75 nmol/L provides any additional reduction as suggested by our data," the authors conclude.

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