Effects of Vitamin D Supplementation in Gestational Diabetes Mellitus: An Updated Systematic Review and Meta-analysis of Randomized Clinical Trials.

Introduction: Vitamin D deficiency during pregnancy has been associated with adverse gestational outcomes, including the onset of gestational diabetes mellitus (GDM). The study aimed to evaluate the effectiveness of vitamin D supplementation in GDM. Method: Update of the search date for the Cochrane systematic review with the inclusion of randomized controlled trials (RCTs). Pregnant women with GDM who received vitamin D supplementation versus placebo/no treatment or vitamin D and calcium versus placebo/no treatment were included. Primary outcomes were: preeclampsia, preterm birth, cesarean section, gestational hypertension, and adverse events related to vitamin D supplementation. The databases consulted were: MEDLINE, Embase, LILACS, and CENTRAL until July/2019. Meta-analysis plotted using Review Manager 5.3. Quality of evidence according to Grading of Recommendations Assessment, Development and Evaluation (GRADE). Results: 1348 studies identified, where eleven trials were potentially eligible and six were included in this review (total of 456 women). For primary outcomes, cesarean section frequency meta-analysis showed no significant difference between groups and the other primary outcomes were not reported in the studies. Secondary outcomes suggest that vitamin D supplementation in pregnant women with GDM may reduce neonatal complications such as hyperbilirubinemia, polyhydramnios (RR: 0.40, 95% CI: 0.23 to 0.68; RR: 0.17, CI 95%: 0.03 to 0.89; respectively), need for maternal or child hospitalization (RR: 0.13; 95% CI: 0.02 to 0.98; RR: 0.40; 95% CI: 0.23 0.69) and decreased fasting glucose (MD: -15.50, 95% CI: -20.32 to -10.68). However, the evidence was of low or very low quality. Conclusion: No robust evidence was found indicating that vitamin D supplementation improves GDM-related adverse gestational outcomes. Thus, more RCTs are needed to determine the efficacy and safety of vitamin D supplementation in GDM.

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