Abstract


Maternal vitamin d status as a critical determinant in gestational diabetes.

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OBJECTIVE: To synthesize published research to determine the evidence for the association between maternal vitamin D status during pregnancy and the development of gestational diabetes mellitus (GDM).

DATA SOURCES: Literature searches were conducted for data based articles that examined maternal vitamin D during pregnancy, GDM, glucose tolerance, and insulin resistance using the PubMed, CINAHL, and SCOPUS data bases and reference lists from reviewed papers.

STUDY SELECTION: Primary research studies published in the English language between 1999 and 2011 reporting findings regarding the association of vitamin D with glucose homeostasis during pregnancy and GDM.

DATA EXTRACTION: Study characteristics and findings related to vitamin D status determinants, gestational timing, and measures of glucose homeostasis and insulin resistance.

DATA SYNTHESIS: Six data based articles met the criteria for study inclusion. Study findings comprised solely Level-2 evidence for the association of maternal vitamin D deficiency and risk of GDM. The majority of studies (66%) were conducted between 24 and 30 weeks gestation. Five (83%) studies reported an inverse relationship between circulating vitamin D levels and markers of glucose homeostasis associated with gestational diabetes or an increased risk for GDM associated with reduced maternal levels of vitamin D. In one study, researchers did not identify an association between vitamin D and GDM but did identify an association between higher vitamin D levels and lower fasting glucose and insulin levels.

CONCLUSION: Maternal vitamin D deficiency and insufficiency is prevalent among gravid women and is associated with markers of altered glucose homeostasis. These findings underscore the need for mechanistic and clinical studies to determine optimal vitamin D status in pregnancy for reduction in the risk for GDM with implications for vitamin D supplementation as a potential target for GDM prevention.

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