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Vitamin D deficiency: Predictive factor for Gestational Diabetes Mellitus

Samar Rachidi¹, Mohammad Chaheen¹, Salam Zein¹, Mayass Msheik², Sanaa Awada¹, Amal Hajj¹, Pascale Salameh¹, Ahmad Yassine¹, Wafaa Bawab¹ and Isabelle Hininger-Favier³

¹Lebanese University, Lebanon

²Lebanese Armed Forces, Lebanon

³Universite Joseph Fourier, France

Introduction: Vitamin D is a fat-soluble vitamin that is responsible for many functions in the body and for pregnant women. The objective of this pilot study is to estimate the association between predictive factors of Gestational Diabetes Mellitus (GDM): Maternal 25-hydroxy vitamin D (25-OH-D) deficiency at 24-28 weeks of gestation and development of GDM among Lebanese women and to compare two different methods for vitamin D dosing (chemi-luminescent micro-particle micro-assay and liquid chromatography mass spectrometry) to show if any difference exist.

Materials & Methods: We conducted an observational retrospective case-control study involving 14 women who developed GDM and 56 women who had not developed GDM. The study was carried out between September 2014 and February 2015. World Health Organization criteria (2013) were used to diagnose GDM. To define the deficiency status, 25-OH-D levels were further classified into severely deficient, insufficient, normal, superior normal and hyper-vitaminosis groups.

Results: The percentage of vitamin D deficiency was found to be 7.1%. The mean of 25(OH) D levels at 24-28 week of gestation were not significantly different between the two groups, 87.2143 (34.95311) n-mol/L for the cases and 93.1250 (34.23133) n-mol/L for controls ($p=0.567$). The fasting blood glucose and oral glucose tolerance test after 1 and 2 hours were not significantly different between women having vitamin D deficiency and the others ($p=0.553$, 0.494 and 0.181 respectively). The difference in vitamin D level between first trimester 34.8280(18.80048) and the visit at 24-28 week 91.9429 (34.20352) n-mol/L was statistically significant ($p=0.000$). A comparison between two methods; Chemi-luminescent micro-particle micro-assay (CMM) and liquid chromatography mass spectrometry (LCMS)- in vitamin D dosing at 24-28 week of gestation showed a significant difference in paired sample T-test ($p=0.000$), measure of agreement Kappa = 0.846 and intra-class correlation coefficient of 0.850. In a logistic multivariable analysis, we found no significant relation between vitamin D level at 24-28 week and GDM ($p= 0.684$), and also when taking a vitamin D/ calcium supplement ($p= 0.723$), but a positive relation between number of infants and risk of developing GDM, OR= 2.057 ($p=0.027$) was observed.

Conclusion: The association between maternal Vitamin D second trimester status and GDM in pregnancy was not significant and the two measuring methods showed a high agreement. Future studies with larger sample size are needed to confirm this association.

Biography

Samar Rachidi is a Professor at the Faculty of Pharmacy, Lebanese University, responsible of Clinical Nutrition and Fundamental Nutrition, Chronic Patient Education in the master degree. He has a PhD degree in Clinical Biochemistry and a Doctor in Pharmacy degree. He is a part of a research group at the Faculty of Pharmacy. Our work and studies are focused on Clinical Pharmacy and Pharmaco-Epidemiology; in different he is leading the Pharm D officinal degree, delivering a formation including pharmaceutical care, patient education, and prescription analysis and intervention. He is responsible of the training program inside the community pharmacies in partnership with the pharmacists order, including the students repartition, skills and assessment of competencies. He has leaded the clinical pharmacy department managing the relation with different internal and external customers.

samar.rachidi@outlook.com

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