

## CONFERENCE ABSTRACT

# Associations between vitamin D deficiency, diet and physical activity and the development of gestational diabetes mellitus in Emirati women

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### 1<sup>st</sup> International Growth and Development Conference (IGDC 2017)

March 16-18, 2017

Dubai, United Arab Emirates

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### Abstract

**Background:** Gestational Diabetes Mellitus (GDM) affects 8-25% of Emirati women and its prevalence is progressively increasing in this population. Concurrently, vitamin D deficiency is a common problem among pregnant Emirati women. Existing literature suggests that vitamin D deficiency increases the risk of GDM. **Objectives:** to investigate the association between vitamin D deficiency, diet and physical activity and the development of GDM. **Methods:** A prospective cohort study was conducted on Emirati women (n=563) aged 18-45 years, who were free of GDM at baseline and underwent maternal serum screening in eight primary healthcare centers in Ras Al Khaimah, UAE. Data on demographics, physical activity (Global Physical Activity Questionnaire), diet intake (Food Frequency Questionnaire), anthropometrics and blood pressure were collected at baseline. Also, blood samples were drawn at baseline to measure the fasting blood glucose and the 25 OH D levels. GDM was screened and diagnosed by using the fasting and the 75g 2-hour postprandial Oral Glucose Tolerance Test (OGTT) according to the ADA guidelines at follow up between 24th and 28th weeks of gestation. Vitamin D deficiency was diagnosed according to the NIH and NHS criteria (deficiency if 25(OH)D < 50 nmol/l = 20 ng/ml). **Results:** Overall, 58% and 26% of pregnant women had vitamin D deficiency and insufficiency respectively. The incidence of GDM was 15.2 %. The adjusted odds ratio (aOR) for developing GDM was 1.27 (95% [CI]: 0.74-2.18, p: 0.37) in vitamin D deficient women versus non-deficient women. The adjusted odds ratio of GDM for sitting time without work was 1.04 (95% CI: 0.92-1.16, p: 0.50). The adjusted odds ratio of GDM was significant in those who ate red meat daily (OR: 6.54, 95% CI: 1.53-27.82, p=0.011). Family history of diabetes and obesity were significant risk factors for the development of GDM (OR: 1.9, 95% CI: 1.04-3.51, p: 0.03) and (OR: 2.62, 95%CI: 1.36-5.06, p=0.004) respectively. **Conclusion:** In this cohort study there was no statistically significant association between vitamin D deficiency in early pregnancy and the development of GDM.

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