ISSN: 1813-1638

The Medical Journal of Tikrit University

Available online at: www.mjotu.com

Relation of Vitamin D With Macrosomia in Pregnant Women Attending Kirkuk General Hospital

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***Keywords*:**

Macrosomia,
Vit D,
Pregnancy,
Gestational age,
Birth weight

A R T I C L E I N F O

Article history:

Received 01 Oct 2019
Accepted 01 Nov 2019
Available online 01 Dec 2019

ABSTRACT

Background: The predominance of hypovitaminosis D is especially high in pregnant populaces. The creating baby is altogether needy upon the maternal pool of calcium and, thusly, there are developing worries about the ramifications of nutrient D insufficiency in pregnancy and past. Glucose is the principle vitality substrate for intrauterine growth. the aim of study to describe the relationship between maternal vitamin D status and risk of macrosomia

Material and methods : This short prospective study was conducted in Kirkuk city for the period from June to September 2019 on 100 pregnant women who delivered infant with macrosomia whose ages were between 20-45 years old who admitted to Kirkuk general hospital/Obstetric part.The biochemical assessment of vitamin D by ELISA. The study also included 40 healthy pregnant women as control group in the same age groups The study showed significant differences between cases and control regarding Intrapartum BMI, gestational weeks at birth, birth weight, gestational diabetes and nulliparous pregnancy.

Results : The study showed that 77% of pregnant women have vit D deficiency compared with 12.5% of healthy control (P :0.001). Mean 25-OHD Concentrations and Proportions Classified According to IOM Cut Points Within the Cohort in Early Pregnancy, at 28 Weeks of Gestation and in Cord Blood at Delivery. The study showed negative correlation of gestational age and birth weight with maternal vitamin D level.

DOI: http://dx.doi.org/10.25130/mjotu.25.02.20

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Introduction

The predominance of hypovitaminosis D is especially high in pregnant populaces (1). The creating baby is altogether needy upon the maternal pool of calcium and, thusly, there are developing worries about the ramifications of nutrient D insufficiency in pregnancy and past. Glucose is the principle vitality substrate for intrauterine growth(2). Disturbance of ordinary glucose homeostasis in pregnancy inclines to fetal macrosomia, and specifically, the abundance statement of subcutaneous fat(3). Maternal weight is expanding in the created world and is inherently connected to glucose digestion. Expanded maternal BMI in pregnancy presents an expanded danger of conveying a macrosomic newborn child and has additionally been related with a higher inclination to nutrient D lack in various studies(4). Research has demonstrated that gestational weeks during childbirth, pre-pregnant weight list (BMI), gestational weight gain, embryo sexual orientation, birth season, condition of gestational diabetes and hereditary elements could impact BW(5). Regardless of whether maternal nutrient D insufficiency is related with newborn child BW stays a subject of discussion. Because of fetal development needs, deficient nutrient D admission and restricted daylight introduction, nutrient D insufficiency is basic in pregnant women(6). The relationship of maternal nutrient D levels with fetal development has been examined by various observational investigations and randomized controlled preliminaries, a greater amount of which concentrated on baby BW and SGA and once in a while considered macrosomia(7). The point of this examination was to depict the connection between maternal nutrient D status and danger of macrosomia .

Materials and Methods

This short forthcoming examination was led in Kirkuk city for the period from June to September 2019 on 100 pregnant ladies who conveyed newborn child with macrosomia whose ages were between 20-45 years of age who admitted to Kirkuk general medical clinic/Obstetric part

Incorporation criteria :

- Pregnant ladies with macrosomia
- Age 20-45

Rejection criteria :

- Patients who take treatment of Vitamin D

Technique: Three ml of blood was gathered by vein cut utilizing 5 ml syringe from every patient. Blood tests were set into test tubes, left for 30 minutes at 37 °C for coagulating and centrifuged at 3000 rpm for 15 minutes, sera from were then suctioned and moved into Eppendorf tubes for late biochemical for evaluation of nutrient D by ELISA (Koma biotech-USA) and as production directions. The examination likewise remembered 40 solid ladies as control bunch for a similar age gatherings

Measurable examination

Mechanized measurably investigation was performed utilizing Mintab ver 18.0 measurement program for assurance of the P. esteem (P<0.05: significant)

Results

The study showed significant differences between cases and control regarding Intrapartum BMI, gestational weeks at birth, birth weight, gestational diabetes and nulliparous pregnancy, (Table 1).

Table 1: Maternal characteristics of cases and controls

Maternal characteristics	Women who delivered infant with macrosomia	Controls	P. value
	(n = 100)	(n = 40)	
Maternal age (year)	29.17 ± 4.2	29.7 ± 8.8	NS
Intrapartum BMI (kg/m2)*	29.7 ± 4.2	27.1 ± 3.8	<0.01
Gestational weeks at birth*	39.5 ± 1.0	39.1 ± 1.1	<0.01
Sampling gestational weeks‡	28 (27, 30)	28 (27, 29)	0.443
Fetus gender (Male)	61%	63%	NS
Birth weight (gm)*	4153.7 ± 179.2	3399.6 ± 401.4	<0.01
Gestational diabetes	28%	25%	0.04
Nulliparae	92%	95%	0.012
Having abnormal pregnancy history	15%	16%	0.81

The study showed that 77% of pregnant women have vit D deficiency compared with 12.5% of healthy control (P :0.001), (Table 2)

Table 2: Results of Vit D among the study groups.

Vitamin D level (ng/ml)	pregnant women who delivered infant with macrosomia		Healthy control	
	No.	%	No.	%
Normal	23	23	35	87.5
Deficient	77	77	5	12.5
Total	100	100	40	100

P<0.05

	≥50 nmol/LN (%)	30-49.9 nmol/LN (%)	<30 nmol/L, N (%)
Early pregnancy[a]	23 (38%)	20 (33%)	17 (28%)
28 Weeks' gestation	25 (42%)	26 (43%)	9 (15%)

The study showed negative correlation of gestational age and birth weight with maternal vitamin D level (Table 4)

Table 4: Correlation of vitamin D of mothers with their characteristics in the study

Parameters	Vitamin D level	
Maternal characteristics	R value	P. value
Maternal age (year)	-0.03	
Intrapartum BMI (kg/m2)*	-0.1	
Gestational weeks at birth*	-0.6	<0.01
Birth weight (gm)*	-0.63	<0.01
Blood sugar	-0.53	0.04

Discussion:

Nutrient D appears to have a few extraskeletal capacities including guideline of glucose digestion through affecting insulin affectability, despite the fact that the components are not completely comprehended. The pancreatic β cells express both nutrient D receptor and chemical 1α-hydroxylase which empowers them to deliver 1,25(OH)2D locally (7). The impact of nutrient D on guideline of pancreatic β cell capacity and insulin discharge could be intervened through intracellular changes in calcium pool. Nutrient D could likewise upgrade insulin affectability by animating insulin receptor quality articulation in this manner improving insulin interceded glucose transport (8). What's more, nutrient D may likewise be expected to guarantee a typical pace of calcium transition across cell layers and upkeep of a sufficient cytosolic calcium pool, which is significant for insulin-interceded intracellular motioning in insulin-responsive tissues (9). In any case, a few investigations propose that nutrient D could assume a job in the pathogenesis of diabetes mellitus type 2 by influencing insulin affectability of β cell work (10-12). Nutrient D is likewise fundamental for appropriate fetal programming and its insufficiency during pregnancy may prompt low birth weight and expanded powerlessness to constant ailment sometime down the road (13,14). Information in the writing to date with respect to the connection between nutrient D and glucose digestion are clashing. Poor nutrient D status has been embroiled in the pathogenesis of type 1 diabetes for quite a while, however more as of late proof is developing for a job in insulin opposition and type 2 diabetes(15-18). They likewise announced a reverse relationship between maternal BMI and 25-OHD fixations, however no remark on maternal or fetal adiposity, or baby birth weight was made. Conversely, one examination found

no relationship between maternal hypovitaminosis D at 30 weeks of development and the rate of gestational diabetes, weakened fetal development, or string insulin opposition in a huge associate of Indian mothers(19). Translation of these investigations is restricted by the heterogeneity of the populaces considered and trouble in deciding connections dependent on a solitary 25-OHD level at one time point and the pregnancy result.

Ethical clearance: This research was carried out with the patient's verbal and analytical approval before the sample was taken.

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