

## ASSESSMENT OF THE LEVATOR HIATUS AREA BY THREE-DIMENSIONAL ULTRASOUND FROM PREGNANT WITH GESTATIONAL DIABETES.

### Hypothesis / aims of study

Current evidences suggest that diabetes during pregnancy damages the striated muscle, a fact that may explain the high prevalence of urinary incontinence and pelvic floor dysfunction in women with gestational diabetes mellitus (GDM) .(1-3)

The Hypothesis of this study is that women with GDM may have more changes in the pelvic floor muscle, in the area of levator Hiatus, when compared with normoglycemic pregnant women.

The aim of study was evaluate and compare the Levator Hiatus area assessed at second trimester and later, at third trimester, by transperineal Three-dimensional Ultrasound from pregnant women with GDM.

### Study design, materials and methods

A longitudinal study was conducted between March and December 2015, on 18 pregnant women, divided into 2 groups: 9 with GDM and 9 normoglycemic, according to 2015 American Diabetes Association criteria.

This study was approved by a Research Ethics Committee. The women who agreed to voluntarily participate in the study signed a consent form. The inclusion criteria were: singleton pregnancy and nulliparity . The exclusion criteria were: previous Diabetes or age less than 18. A standard translabial ultrasound scan was performed. A GE Voluson i 3D Ultrasound system (GE Medical Systems) with a RAB 2-6-RS 3D transducer was used for image acquisition. The transducer was placed on the perineum in the mid-sagittal plane with the women in lithotomy position. Three-dimensional ultrasound scans of the pelvic floor anatomy with a sweep angle of 85° were obtained at rest. The volume data sets were saved and standardized analysis was performed at a later date. Women from both groups (GDM and Normoglycemic group) were assessed at second trimester (between 24 and 28 weeks of gestation) and third trimester (between 34 and 38 weeks of gestation). Volumetric acquisitions were performed by the same examiner and analyzed off-line. The area (cm<sup>2</sup>) of levator hiatus in the minimal hiatal dimensions was measured in the axial rendered plane.

### Results

Eighteen pregnant women were included, 9 normoglycemic with mean age of 28,2±4,2 (22-34) years old and 9 Pregnant women with Gestational Diabetes with mean age of 26,2±5 (20-35) years old.

	Normoglycemics	GDM	p*
24th to 28th	13,4±2,8 (9,94-18,52)	16,5±1,6 (13,45- 18,67)	0,01
34th to 38th	15,8±2,7 (10,6-18,4)	17,3±2,4 (12,95-20,67)	0,35
p**	0,036	0,281	

\*inter groups    \*\* intra groups    p: <0,05

### Interpretation of results

Both groups were similar when related to Age and Maternal weight gain. GDM group had Levator Hiatus area at second trimester significantly higher than that observed in the normoglycemic group. No significant differences were found between the groups at third trimester.1

### Concluding message

In conclusion, this study suggests that there are anatomical changes observed by 3D ultrasound of the pelvic floor during pregnancy complicated with Gestational Diabetes.

Further studies are needed to elucidate the potential role of GDM in the anatomical and functional changes of pelvic floor during pregnancy.

### References

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### Disclosures

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