MICRO LABS LIMITED

GYNAE SPECTRUM

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Dear Doctor,
Greetings from Micro Labs. We are happy to bring you "Gynae Spectrum", which contains latest and interesting news in the field of Obstetrics and Gynecology.

This issue contains:

- Postpartum complications increased in women with polycystic ovary syndrome.
- Assessment of Endometrial biomarkers in premenopausal women with obesity.
- A novel Robot for Transvaginal Hysterectomies

Should you require any article or, medical information, please feel free to contact us medicalservices@microlabs.in

Looking forward to your valuable feedback.
Best Regards,
Medical Team, Micro Labs Limited

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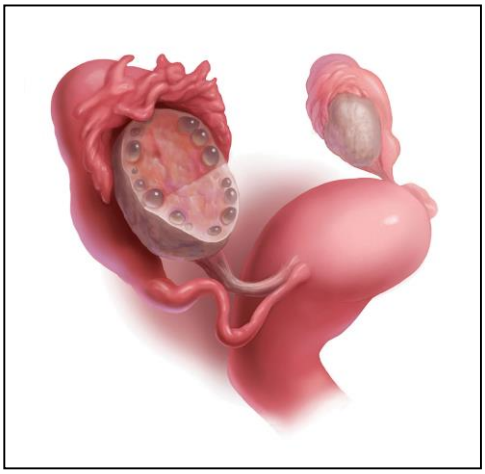
1. Postpartum complications increased in women with polycystic ovary syndrome.



Polycystic ovary syndrome (PCOS) is most common endocrine disorder affecting women of reproductive age.
Aim : To investigate the risk of postpartum cardiovascular disease complications and perinatal and postpartum depression.

Methods:
A retrospective cohort study involving 29,233,000 patients was conducted in Women with and without polycystic ovary syndrome aged 18 to 50 years enrolled continuously in a single health plan during the preconception, antepartum, and postpartum periods.
Primary outcome assessed were postpartum cardiovascular disease and depression (perinatal and postpartum).
Logistic regression was used to adjust covariates including age, geographic location, preterm delivery, assisted reproductive technology use, multiple births, prepregnancy depression, prepregnancy diabetes, prepregnancy hypertension, gestational diabetes, gestational hypertension, obesity, history of hyperlipidemia, smoking, and race.
Peripartum cardiomyopathy was defined as occurring within 1 month before delivery and up to 5 months after date of delivery.
Perinatal depression was defined as occurring during pregnancy and up to 3 months after delivery. Postpartum depression was defined as occurring after date of delivery up to 3 months postpartum.

Results:
In Women with PCOS a significantly higher prevalence of postpartum PE (OR, 1.81; 95% CI, 1.63e2.01), eclampsia (OR, 2.27; 95% CI, 1.81e2.84), peripartum cardiomyopathy (OR, 1.84; 95% CI, 1.52e2.23), hypertensive heart disease (OR, 2.09; 95% CI, 1.71e2.55), thrombotic disease (OR, 1.85; 95% CI, 1.50e2.28), CHF (OR, 2.00; 95% CI, 1.69e2.35), and cerebrovascular accidents was seen.
African women had significantly higher odds of postpartum PE (aOR, 1.59; 95% CI, 1.45e1.74), peripartum cardiomyopathy (aOR, 1.95; 95% CI, 1.67e2.29), hypertensive heart disease (aOR, 2.00; 95% CI, 1.70e2.37), and CHF (aOR, 2.02; 95% CI, 1.76e2.32) than white women, adjusted for PCOS status.

Complication	PCOS (n=42,391)	Non-PCOS (n=795,480)	OR (95% CI)	aOR (95% CI)
Cardiovascular outcomes				
Postpartum preeclampsia	390 (0.92)	4060 (0.51)	1.81 (1.63–2.01)	1.30 (1.17–1.45)
Postpartum eclampsia	85 (0.2)	705 (0.09)	2.27 (1.81–2.84)	1.45 (1.14–1.86)
Peripartum cardiomyopathy	116 (0.27)	1182 (0.15)	1.84 (1.52–2.23)	1.26 (1.03–1.54)
Hypertensive heart disease	109 (0.26)	979 (0.12)	2.09 (1.71–2.55)	1.32 (1.07–1.64)
Thrombotic disease	98 (0.23)	995 (0.13)	1.85 (1.50–2.28)	1.50 (1.20–1.87)
Congestive heart failure	157 (0.37)	1479 (0.19)	2.00 (1.69–2.35)	1.35 (1.13–1.61)
Cerebrovascular accidents	1263 (2.98)	15,366 (1.93)	1.56 (1.47–1.65)	1.21 (1.14–1.29)
Ischemic heart disease	11 (0.03)	166 (0.02)	1.24 (0.68–2.29)	—
Depression outcomes				
Perinatal depression	2956 (6.97)	40,311 (5.07)	1.40 (1.35–1.46)	1.27 (1.22–1.33)
Postpartum depression	899 (2.12)	10,815 (1.36)	1.57 (1.47–1.68)	1.46 (1.36–1.57)

Women with PCOS had an increased risk of perinatal depression (OR, 1.40; 95%) and postpartum depression than those without PCOS.

Interaction between PCOS and obesity was statistically significant for the following CVD-related outcomes: postpartum eclampsia (P=0.032), peripartum cardiomyopathy (P=0.039), and cerebrovascular accidents (P=0.002).

Discussion:

In current study, PCOS, showed a higher prevalence of cardiometabolic and depression complications both before and during pregnancy. Non obese women with PCOS appeared to drive the increased risk observed for postpartum eclampsia, cardiomyopathy, and cerebrovascular accidents.

Conclusion:

Increased risk of cardiovascular and psychiatric postpartum complications is seen in women with PCOS.

Reference:

Alur-Gupta S et al. Postpartum complications increased in women with polycystic ovary syndrome. Am J Obstet Gynecol. 2021 Mar;224(3): 280.e1-280.e13.

2. Assessment of Endometrial biomarkers in premenopausal women with obesity.

Obesity is continuing epidemic, increases the incidence of endometrial cancer and a younger age of diagnosis are often attributed to a hyperestrogenic state created by hormone production in adipose tissue, but significant knowledge gaps remain.

Balance of estrogen-responsive signals has not been defined in the endometrium of premenopausal women with obesity, where obesity may not create hyperestrogenism in the context of ovaries being the primary source of estrogen production.

Obesity is associated with a state of low-grade, chronic inflammation that can promote tumorigenesis, and it is also known that hormonal changes alter the immune microenvironment of the endometrium.

Aim of the study was to determine that obesity is associated with differences in the biomarker expression levels, which might reflect an altered risk of developing cancer. The expression of a multiplexed panel of immune-related genes was also evaluated for expression differences related to obesity.

Methods:

A cross sectional trial involving 102 patients were conducted.

Patients included were Premenopausal women aged between 30 and 55 years with a bodymass index (BMI) of 30 kg/m2 or 25 kg/m2 were recruited, unselected for genetic risks. Informed consent was obtained.

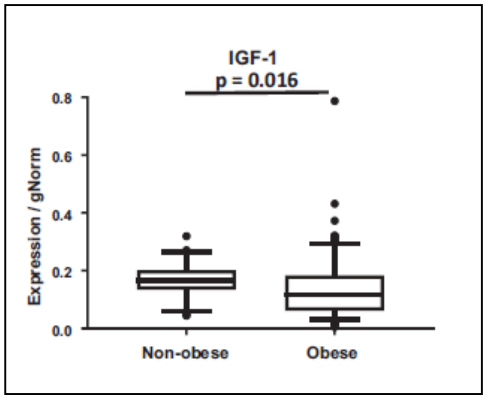
Exclusion criteria were: current use of hormonal agents (within 3 months of enrollment), a personal history of endometrial hyperplasia or cancer, previous pelvic radiation treatment, history of metastatic cancer, nonmetastatic cancer treated with hormonal therapy, or nonmetastatic cancer that was treated 6 months before enrolment.

Participants underwent an endometrial biopsy timed between days 6 and 11 of their menstrual cycle (proliferative phase). The endometrial biopsies were examined by a clinical anatomic pathologist.

Total testosterone, free testosterone, sex hormone binding globulin (SHBG), follicle-stimulating hormone, luteinizing hormone, and glucose were measured. IGF-1, insulin-like growth factor-binding protein 1 (IGFBP1), and IGFBP2 protein levels were measured using MilliPlex MAP assay kits. Insulin was measured using an enzyme linked immunosorbent assay.

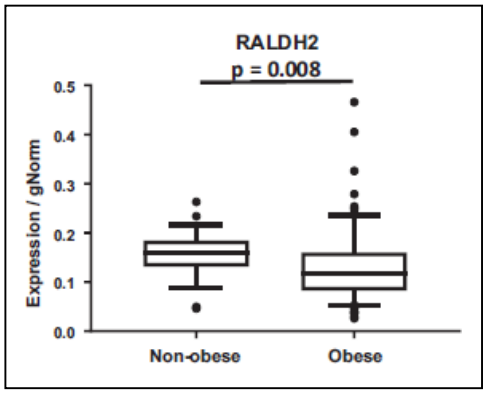
Primary antibodies for Ki67, IGF-1 is a proproliferative uterine growth factor linked with diabetes, polycystic ovary syndrome (PCOS), and obesity, and it is increased in hyperplasia and during neoplastic transformation. EIG121 expression is linked with excess estrogen, is increased in complex atypical hyperplasia and endometrioid endometrial cancers, and regulates prosurvival signaling during periods of cellular stress. RALDH2 is an enzyme that catalyzes the synthesis of retinoic acid, an inhibitor of endometrial proliferation. SFRP4 acts as an antagonist of ligands in the Wnt signalling pathway and decreases Wnt-associated endometrial proliferation. Survivin, an inhibitor of apoptosis, is increased in endometrial cancers.

Results: Showed that Blood levels of systemic hormonal and endocrine markers showed increased leptin and insulin and decreased SHBG and adiponectin in women with obesity. Total estradiol and testosterone (free and total) levels were similar between cohorts. Serum progesterone levels were below the limit of detection (0.1 ng/mL) for 24 of 33 participants without obesity and for 80 of 94 participants with obesity, precluding statistical comparisons.



Biomarkers in the endometrial biopsy demonstrated significantly reduced gene expression levels for IGF-1, RALDH2, and surviving in the cohort with obesity. The PR gene expression levels were significantly reduced.

Assessment of the protein levels also show reduced expression of PR in the stroma of women with obesity vs women without obesity, but there was no change in expression levels in the glands.



Discussion:

Current study showed that estrogen-regulated endometrial biomarkers (IGF-1, survivin, and RALDH2) were decreased in obesity.

PR gene expression and stromal PR protein levels were decreased in women with obesity.

Compensatory or protective mechanisms may be mounted against pro-tumorigenic changes in the endometrium of premenopausal women with obesity.

Conclusion:

Differences of Biomarker in women with obesity and Lynch syndrome or IR suggest that these combined aberrations may result in an imbalance or disturbance in estrogen-responsive signals.

Reference:

Dottino JA et al. Endometrial biomarkers in premenopausal women with obesity: an at-risk cohort. Am J Obstet Gynecol. 2021 Mar;224(3):278.e1-278.e14.

IN FOCUS

3. A novel Robot for Transvaginal Hysterectomies

A new Hominis robot-assisted surgical platform for transvaginal benign surgical procedures, including benign hysterectomies.

The robotic component is quite small, unlike typical robotic surgery setups that can take up entire rooms. A workstation with controls designed for intuitive operation provides the capability to manoeuvre surgical tools with 360 degrees of articulation and multi-planar flexibility.

Dexterity of Human level is maintained to the distal end of the instruments. Each of the instruments mimics the human arm, with a shoulder, elbow, and wrist joints that can move together to access targets that linear instruments cannot. This is important for hysterectomies that often have to be performed in open surgeries instead of transvaginally due to challenging

patient anatomies.

Reference: Available at : https://www.medgadget.com/2021/03/surgical-robot-with-humanoid-arms-for-transvaginal-hysterectomies.html. Accessed on 20-03-2021.