without PCOS. Approximately 3 g of tissue was excised from subcutaneous adipose tissue through a small incision in the suprapubic area. mRNA was isolated and gene expression profiling was performed including following genes: GLUT4, irisin, leptin, omentin, vaspin, adiponectin, visfastin, apelin, serum amyloid A1 and chemerin. Blood samples were taken between 3rd and 5th day of the menstrual cycle to evaluate serum hormonal levels. The oral glucose tolerance test (OGTT) was done simultaneously with the assessment of glucose and insulin plasma levels at 0, 60 and 120 minute. **Results:** Patients with PCOS presents different mRNA expression of adipocytokines compared with control group. There were statistically significant differences in irisin, leptin, omentin, visfastin, chemerin and serum amyloid A1 expression, that were higher in PCOS. GLUT-4 and adiponectin expression was significantly lower in PCOS patient compared to control. Due to an insufficient measurement of apelin and vaspin gene expression there were not included in following analysis. **Conclusions:** mRNA expression of adipocytokines in adipose tissue in women with and without polycystic ovary syndrome is different. In women with PCOS, there is a higher expression of genes for most of adipocytokines with lower for adiponectin and GLUT-4.

Reproductive Endocrinology

HYPERANDROGENIC DISORDERS THROUGHOUT THE LIFESPAN AND INTO THE NEXT GENERATION

Overnight Melatonin Concentration and Sleep Quality Are Associated With Clinical Features of Polycystic Ovary Syndrome

Adam T. Evans, M.D.[1], Heidi Vanden Brink, Ph.D., M.Sc., RDMS[2], Jessica S. Lim, B.S.[2], Brittany Y. Jarrett, Ph.D., R.D.[2], Marla Elaine Lujan, Ph.D.[2], Kathleen M. Hoeger, M.D., MPH[1].
[1]University of Rochester, Rochester, NY, USA, [2]Cornell University, Ithaca, NY, USA.

Introduction: Women with polycystic ovary syndrome (PCOS) have an increased incidence of sleep disturbances compared to healthy women. Circulating melatonin (MEL) is elevated in women with PCOS, thought to reflect an increased daytime and blunted peak in overnight MEL, consistent with an altered circadian rhythm. Whether circadian disruptions coincide with sleep disturbances in women with PCOS or their symptom severity is unclear.
Objective: To determine whether altered MEL production coincides with reduced sleep quality in women with PCOS and to examine whether there is a relationship between MEL production, sleep disturbances and the diagnostic features of PCOS.
Methods: Women with PCOS (n=22) and controls (n=12) were recruited prospectively. PCOS was defined based on the 2018 International Guideline. Controls exhibited no more than 1 diagnostic feature of PCOS. Women underwent a reproductive history, clinical exam, and transvaginal ultrasound. Fasting blood samples were obtained to measure reproductive hormones. Urine samples were collected in the evening and upon awakening on 1-2 days and assayed for urinary 6-sulfatoxymelatonin as a proxy for daytime and overnight MEL production, respectively. The night:day (N:D) MEL ratio was determined to assess the rhythm of MEL production. Sleep quality and duration were assessed using the Pittsburgh Sleep Quality Index (PSQI) and via overnight wrist actigraphy. Differences between measures of urinary MEL and sleep quality were analyzed using two tailed t-tests. Associations between diagnostic features of PCOS and sleep-related measures were computed using Pearson partial correlations after adjusting for BMI.
Results: No differences were detected in overnight MEL, daytime MEL, or the N:D ratio in women with PCOS versus controls. PCOS group experienced reduced weekend sleep efficiency vs. controls (81.18% vs. 87.76% $p<0.05$), albeit no differences were detected in PSQI scores, sleep duration or total sleep efficiency determined via wrist actigraphy between groups. Longer menstrual cycle length correlated with poor sleep quality as defined by PSQI (rho=0.3662, $p<0.05$) and FNPO was positively associated with overnight MEL (rho=0.3586, $p<0.05$).
Conclusions: Day and night MEL production and sleep quality did not differ between women with PCOS and controls despite weekend sleep efficiency being reduced in women with PCOS. Diagnostic features of PCOS were associated with MEL production and sleep disturbances suggesting that women with a more severe clinical presentation of PCOS may be more likely to experience altered MEL production or sleep disturbances. Further studies with a larger sample size are needed to understand the link between degree of symptomology in PCOS, MEL production, and sleep disturbances.

Reproductive Endocrinology

HYPERANDROGENIC DISORDERS THROUGHOUT THE LIFESPAN AND INTO THE NEXT GENERATION

PCOCheck AMH ELISA: A Clinical Case Report to Resolve Miss-Matched Antral Follicle Counts (AFC) to Serum AMH

Ajay Kumar, PhD[1], Bhanu Kalra, PhD[1], Kannan Alpadi, PhD[1], Katherine Green, MD[2], Frank Wittmaack, MD[2].
[1]Ansh Labs, 445 Medical Center Blvd, Webster, TX, USA, [2]Aurora Fertility Center, The Women's Center at Aurora Bay Care Medical Center, 2845 Greenbrier Rd, Ste 350, Green Bay, WI, USA.

Introduction: At times clinicians wonder why a subject's Anti-Mullerian Hormone (AMH) does not correlate to the antral follicle count (AFC). AMH is secreted as a full-length protein and undergoes proteolytic cleavage at amino acid 451 to become biologically active. Additional proteolytic processing takes place at aa229. This processing, which may differ between individuals with different clinical conditions, exposes new antigenic sites which affect AMH measurements. Moreover, AMH epitopes might be masked by protein interaction in the circulation.
Clinical Case: A 24-year-old woman gravida 0 presented with metrorrhagia for several months. The bleeding pattern was unresponsive to a trial of oral contraceptive pills, and they were discontinued. The patient's history is remarkable for a microprolactinoma, managed with dopamine agonist. She has facial acne, but no hirsutism. Her BMI is 24 kg/m2. Laboratory studies revealed normal testosterone (27 ng/mL) and DHEAS (64 mcg/dL). Her prolactin was