without PCOS, factors which are associated with decreased breastfeeding (BF). Thus, our objective was to evaluate if women with PCOS were less likely to initiate BF.
Design: Cross-sectional analysis of participants in the PRAMS (Pregnancy Risk Assessment Monitoring System) dataset, a national questionnaire from the Centers for Disease Control (CDC) sent to postpartum mothers 2–9 months after delivery. PCOS status and BF were by self-report. Logistic regression was used to assess odds of ever BF. Length of BF was assessed using Cox proportional hazards with right censoring for women who were still BF at the time of follow-up. PRAMS complex survey design was accounted for.
Results: PCOS status was available for 14 states. Median response time was 3.7 months postpartum. Data from 16,036 participants were included which represents 855,302 women due to sample weights. 6.6% of women reported having PCOS and 83.8% reported ever BF. Compared to women with a normal BMI, women who were overweight or obese had decreased odds of BF (OR: 0.7, 95% CI: 0.6–0.9, P=0.01; OR: 0.6, 95% CI: 0.5–0.7, P<0.001 respectively); however, PCOS was not associated with BF (OR: 1.1, 95% CI: 0.9–1.3, P=0.6). In multivariate analysis, women with PCOS still were at no decreased odds of BF after adjusting for age, BMI, race, ethnicity, infertility treatment, and delivery factors (OR_{adj}:1.1; 95% CI: 0.8–1.4; P=0.6). Variables associated with decreased odds of BF included: overweight/obesity, age ≤ 19 yrs (vs. 25–29), Black race, smoking, undesired pregnancy intent, gestational age ≤27 wks, and prior live birth. Variables associated with increased BF included: age 30–39 yrs, hospital stay 1–2 days (vs. 3–5), Hispanic ethnicity, and ≥ 3 life stressors. In multivariable Cox models, women with PCOS did not have a shorter length of BF (HR_{adj}: 0.9, 95% CI: 0.8–1.1, P=0.3).
Conclusion: Given the rise of the national rates of obesity and clear maternal and neonatal benefits to breastfeeding, understanding the predictors of BF success is paramount. In this national survey, women with PCOS were at no decreased odds of BF, despite confirming the association between overweight/obesity and decreased BF. However, our data still supports the clinical relevance of carefully targeting women with PCOS for BF education due to the association of PCOS with increased BMI. Additional prospective studies are needed to fully understand the association between PCOS and BF.

Neuroendocrinology and Pituitary

PITUITARY AND NEUROENDOCRINE CLINICAL TRIALS AND STUDIES

Dynamic Interactions Between Luteinizing Hormone and Testosterone in Healthy Community-Dwelling Men: Impact by Age and Body Composition.

Ferdinand Roelfsema, PHD,MD[1], Peter Y. Liu, PHD,MBBS[2], Paul Takahashi, MD[3], Rebecca Yang, RN[4], Johannes D. Veldhuis, MD[5].
[1]Leiden University Medical Center, Leiden, Netherlands, [2]Los Angeles Biomedical Research Institute, Torrance, CA, USA, [3]Mayo Clinic, Rochester, MN, USA, [4]Endocrine Research Unit, Mayo School of Graduate Medical Education, Center for Translational Science Activities, Mayo Clinic, Rochester, MN, USA, [5]Mayo Clinic & Grad Sch of Med, Boise, ID, USA.

OR32-04
Context. Aging is associated with diminished testosterone (Te) secretion, which could be attributed to Leydig cell dysfunction, decreased pituitary stimulation and altered Te feedback. **Objective.** The goal was to quantify all three regulatory nodes of the GnRH-LH-Leydig cell- axis in the same cohort of healthy men, by measuring (1) indirectly the strength of the endogenous GnRH signal on the gonadotrope, (2) the strength of Te feedback on LH by ketoconazole (KTCZ), and (3) the effect of LH infusions on Te secretion, in relation to age and body composition.
Design. This was a placebo-controlled, blinded, prospectively randomized cross-over study in 40 men, age 19–73 yr, BMI 20–34.3 kg/m^2. A submaximal dose of ganirelix (GnRH antagonist) was used to assess outflow of GnRH, by calculating the difference between LH output during the control and ganirelix arm. Ketoconazole (steroidogenic inhibitor) was used to estimate feedback, by the difference in LH output during ketoconazole and control arm. High-dose ganirelix and repeated 6-min LH (18.75 IU) infusions were used to measure testicular responsivity. Blood sampling was at 10-min intervals. The 4 sessions were concluded with, a single submaximally GnRH stimulus to assess the responsiveness of the gonadotrope during ganirelix inhibition.
Setting. The study was performed in a Clinical Translational Research Unit.
Interventions. In 3 of the 4 experiments subjects underwent 5 h of blood sampling at 10-min intervals, starting at 0800 h. At 1100 h GnRH was injected and sampling was continued for another 2 h. Admission was at 1700 h the day before. At 2000 h they received KTCZ, dexamethasone or ganirelix and/or placebo. KTCZ and dexamethasone (or placebo) were administered again at 0700 when the IV catheter was placed. High-dose ganirelix was used to test the testicular responsiveness, and 7 LH pulses (90 min intervals) were given., with blood sampling from 1500 till 1300 h next day.
Outcome measures. Mean concentrations of LH and (bio)Te, deconvolution analysis, endogenous dose-response LH-bioTe relation, and approximate entropy. Abdominal visceral fat (AVF) was calculated from single slice CT.
Results. There were age-, but not body composition-related decreases in estimated endogenous GnRH secretion, Te's feedback strength on LH, and Leydig cell responsivity to LH, accompanied by changes in approximate entropy. Bioavailable Te levels were negatively related to both age and AVF, without interaction between these variables. The LH response to a submaximal dose of GnRH was independent of age and AVF.
Conclusion. Advancing age is associated with 1) attenuated bioavailable Te secretion caused by diminished GnRH outflow and not by decreased GnRH responsivity of the gonadotrope, 2) diminished testicular responsivity to infused LH pulses, and 3) partial compensation by diminished Te feedback on central gonadotropic regulation.

Cardiovascular Endocrinology

FROM BEDSIDE TO BENCH AND BACK AGAIN: LIPID METABOLISM & VASCULAR DISEASE

Leptin Decreases De Novo Lipogenesis in Lipodystrophic Patients

Annah Petek Baykal, B.S.[1], Elizabeth J. Parks, PHD[2], Robert Shamburek, MD[3], Stephanie Chung, M.B.B.S.[3],

Majid M. Syed-Abdul, M.S.[2], Ranganath Muniyappa, M.D., Ph.D.[3], Elaine Cochran, C.R.N.P.[3], Megan Startzell, R.N.[3], Ahmed M. Gharib, MD[4], Ronald Ouwerkerk, PhD[3], Peter J. Walter, PhD[3], Rebecca J. Brown, MD[5].
[1]NATIONAL INSTITUTE OF HEALTH (NIH) Medical Research Scholars Program, Bethesda, MD, USA, [2]University of Missouri, Columbia, MO, USA, [3]NATIONAL INSTITUTE OF HEALTH (NIH), Bethesda, MD, USA, [4]NIDDK-NIH, Bethesda, MD, USA, [5]National Institutes of Health, Bethesda, MD, USA.

OR17-01

De novo lipogenesis (DNL) plays a role in the development of hepatic steatosis and non-alcoholic fatty liver disease (NAFLD). In rodent models of both health and lipodystrophy (LD), leptin decreases DNL. In human patients with LD, reduced adipose tissue results in adipokine deficiencies, including lower plasma leptin, which contributes to insulin resistance, dyslipidemia and ectopic accumulation of triglycerides (TG). The mechanisms by which leptin regulates serum and hepatic-TG are not well elucidated. Studying patients with LD before and after leptin therapy provides an important clinical model for understanding leptin's effect on DNL. We hypothesized that leptin treatment in lipodystrophic patients would decrease DNL by decreasing insulin resistance and glycemia, resulting in reduced circulating and hepatic-TG.

Leptin-naïve patients with LD (n=11) were treated with recombinant leptin (metreleptin) for 6 months. All measurements were performed after an 8–12 hr fast. The % of TG in TG-rich lipoproteins (TRLP-TG) derived from DNL (% DNL) was measured using body water labeling (oral D_2O) of TG and mass spectrometry analysis. Absolute DNL was calculated as the product of TRLP-TG and % DNL. HbA1c and serum-TG were measured biochemically, hepatic-TG by MRI, and total body and hepatic insulin sensitivity measured during a hyperinsulinemic-euglycemic clamp.

DNL decreased after metreleptin: % DNL from 22.8±6.8 to 9.1±5.1% (p=0.0008) and absolute DNL from 54.2±32.1 to 8.6±6.5 mg/dl (p=0.003). TRLP-TG decreased from (median [interquartile range]) 160 [107, 280] to 98 [66, 147] mg/dl (p=0.01). Total body and hepatic insulin sensitivity increased from 3.7 [3.0, 7.3] to 8.4 [5.1,10.6] mg/kg_{FFM}/min (p=0.03) and from 61.0 [48.5, 69.3] to 84.7 [75.2, 107.6] % (p =0.01), respectively. HbA1c decreased from 8.6±1.8 to 7.1±1.4% (p=0.04), hepatic-TG decreased from 17.6±11.9 to 10.3±9.1% (p=0.02), and serum-TG from 386 [216, 686] to 223 [118, 497] mg/dl (p=0.06). DNL correlated negatively with insulin sensitivity both before (r=-0.73, p=0.03) and after (r=-0.85, p=0.004) metreleptin. DNL correlated positively with hepatic-TG before (r=0.70 p=0.03) and tended to correlate after metreleptin (r=0.65, p=0.06). The change in DNL correlated with change in serum-TG (r=0.77, p=0.04) but not the change in hepatic-TG (p=0.80).

We show here for the first time that 6 months of metreleptin treatment in humans with LD decreased DNL by 84% and was associated with reductions in glycemia and improved peripheral and hepatic insulin sensitivity. These data indicate a strong link between metreleptin's effects to increase clearance of blood glucose by peripheral tissues and reduce hepatic carbohydrate flux, resulting in DNL reductions. This led to lowered hepatic steatosis and dyslipidemia and suggests treatments that target multi-organ insulin resistance may lead to decreased NAFLD and cardiovascular risk.

Diabetes Mellitus and Glucose Metabolism

CLINICAL AND TRANSLATIONAL GLUCOSE METABOLISM AND DIABETES

Vitamin D and Its Relation to Type II Diabetes Control and Complications

Khaled Abdullah Alswat, MBBS, CCD, FACP, FACE.
Taif University Medical School, Taif, Saudi Arabia.

MON-612

Vitamin D and its Relation to Type II Diabetes Control and Complications

Background:

Type II diabetes (T2D) prevalence in Saudi Arabia is among the highest in the MENA region according to the recent International Diabetes Federation published statistics. Recent study suggested that around 54% of the screened T2D patients have vitamin D deficiency. Our aim is to assess the prevalence of vitamin D deficiency and its relation to glycemic control and T2D related complications.

Methods:

We conducted a cross-sectional study at the Diabetes Center, Taif, Saudi Arabia for T2D patients whom age > 18 years and were seen in the clinic between Aug2015-Jan2017 and agreed to participate. We excluded those with gestational diabetes and type I diabetes. Baseline characteristics and measurement were obtained by the participated physician. Laboratory data was collected from the patient's EMR. We considered those whom have vitamin D level below 30 (ng/ml) to be deficient.

Result:

A total of 228 patients with a mean age of 59.1 + 12.5 years, diabetes duration of 10.6 + 8.8 years, BMI of 33.4 + 6.2 kg/m^2, heart rate 81.6 + 12.5, systolic BP 130.8 + 19.6, diastolic BP 75.4 + 9.9, fasting glucose 9.4 + 9.5 mmol/l, HbA1c 8.0 + 2.1%, vitamin D 23.2 + 12.3 ng/ml, serum creatinine 73.8 + 22.2, total cholesterol 4.5 + 1.1, LDL 2.7 + 0.9, triglyceride 1.6 + 0.8.

76.3% of the screened patients had vitamin D deficiency. Compared to those with vitamin D deficiency, those with normal vitamin D level less likely to have hypertension (P 0.521), to be male (P 0.028), to have microalbuminuria (P 0.331), and to be diagnosed with neuropathy and retinopathy (P 0.431 and 0.185 respectively). Also those with normal vitamin D were older (P 0.537),has shorter T2D duration (P 0.231), higher BMI (P 0.097), lower pulse rate (P 0.127), lower SBP (P 0.228), higher DBP (P 0.275), lower HbA1c (P 0.027), lower FBG (P 0.093), lower serum creatinine (P 0.039), and lower total cholesterol and LDL (P 0.497 and 0.404 respectively) when compared to those with vitamin D deficiency.

Adjusting for age, gender, diabetes duration, BMI, SBP, DBP, vitamin D supplements and dosage, there was non-significant correlation between HbA1c and vitamin D level.

Conclusion:

Vitamin D deficiency is highly prevalent among our sample of T2D patients. In the non-adjusted modules, vitamin D deficiency were non-significantly associated with more