RFA. And apart from size reduction, little is known about their ultrasonography (US) appearances after RFA. The purpose of this study was to 1) assess the effectiveness of single session RFA treatment on volume reduction 2) determine if quantitative US characteristics are correlated to the VRR 3) demonstrate the US characteristics from the baseline and during the follow-up. Quantification of characteristics was performed using commercial software. The CAD software classified nodules into the 2015 ATA sonographic patterns and TIRADS categories. All patients underwent a single treatment session and with significant improvement in cosmetic and pressure symptoms. It shows that there is a direct correlation between the initial tumor size/cyst component percentage and VRR. The US characteristics are significant different after RFA, and the tumors were categorized to more suspicious ATA patterns and had higher TIRAD scores. In conclusion, RFA is effective on volume reduction and US characteristics correlated with therapeutic success. Post RFA US features may potentially mislead and clinicians should always keep in mind.

Cardiovascular Endocrinology

ENDOCRINE HYPERTENSION AND ALDOSTERONE EXCESS

Patients with Hyperaldosteronism Have Higher Prevalence of Obstructive Sleep Apnea. From the National Inpatient Sample.

Fatima Ahmed, MD[1], Ashraf Abugroun, MD[1], Pragnesh Patel, MD[1], Manar Elhassan, PHD[2], Zaher Msallaty, MD[1], Berhane Seyoum, MD[1].
[1]Wayne State University School of Medicine, Detroit, MI, USA, [2]Qatar University, Doha, Qatar.

SAT-559

Introduction: Previous studies suggested that aldosterone excess may worsen obstructive sleep apnea (OSA) through causing peri-pharyngeal edema. **Objective:** In this study we sought to examine if hyperaldosteronism is associated with OSA. **Methods:** The National Inpatient Sample (NIS) data was queried for adults with diagnosis of primary and secondary hyperaldosteronism during the years 2012 - 2015. Patients with hyperaldosteronism were identified using the international classification of disease (ICD-9). Each patient who was diagnosed with hyperaldosteronism was matched to randomly selected controls at a 1:4 ratio by age, gender and year of hospitalization. A multivariable logistic regression model was used to estimate the adjusted odds ratio (aOR) of OSA among patients with hyperaldosternoism. We adjusted for patient demographics, socioeconomic factors, hospital factors and clinical comorbidities. Subgroup analysis was performed based on gender, race and age groups; young adults (aged 18–35 years), middle aged (> 35-<55 years) and older adults (aged > 55 years). **Results:** There were 23,465 patients diagnosed with hyperaldosteronism identified. The mean age was 59 (standard error of the mean (SEM): 0.1. Females represented 48.5%. Compared to control, patients with hyperaldosteronism had higher prevalence of hypertension, CHF, stroke, obesity, diabetes, renal failure and lower prevalence of tobacco use and COPD. The proportions of African Americans were higher among patients with hyperaldosteronism compared to the control 30.1 vs 15.5, p<0.001. Patients with hyperaldosteronism had higher prevalence of OSA 16.4 vs 8.3, p<0.001. On multivariate analysis, hyperaldosteronism was independently associated with higher odds for OSA with aOR 2.01 (95%CI: 1.81–2.23) p<0.001. On subgroup analysis, similar findings were observed irrespective of gender, age group or race. **Conclusion:** Prevalence of OSA is higher among patients with hyperaldosteronism. Physicians may need to consider a case detection of hyperaldosteronism in patients with OSA and hypertension. Similarly we suggest to evaluate patients with hyperaldosteronism for OSA.

Bone and Mineral Metabolism

BONE DISEASE FROM BENCH TO BEDSIDE

Abaloparatide Prevents Unloading-Induced Bone Loss in Adult Rats

Dian A. Teguh, Ph.D.[1], Jordan L. Nustad, BS[1], Amanda E. Craven, College Senior[1], Daniel J. Brooks, MS[1], Heike Arlt, Ph.D.[2], Beate Lanske, Ph.D.[2], Mary L. Bouxsein, Ph.D.[1].
[1]Beth Israel Deaconess Medical Center, Boston, MA, USA, [2]Radius Health, Inc, Waltham, MA, USA.

SUN-335

Disuse osteoporosis (bone loss resulted from a reduction in mechanical loading) occurs in patients due to prolonged bed rest, paralysis and application of braces. Abaloparatide (ABL) is a synthetic peptide analog of PTHrP that has been shown to promote bone formation with limited bone resorption. ABL was approved by the FDA in 2017 to treat osteoporosis in postmenopausal women at high fracture risk. Yet, the ability of ABL to prevent bone loss in disuse is unknown. We hypothesized that ABL would prevent bone loss in the hindlimb unloading (HLU) rat model of disuse osteoporosis.

Adult male Wistar rats, 13–14 weeks of age, were assigned to 1 of 4 groups (10 rats/group): ambulatory + vehicle (CON-VEH), ambulatory + ABL (CON-ABL), HLU + vehicle (HLU-VEH) or HLU + ABL (HLU-ABL). The rats received a daily subcutaneous injection of ABL (25μg/kg/day) or vehicle for 28 days. Blood serum was collected on day 0, 7, 14 and 28 to examine the expression of bone markers such as osteocalcin (OCN) and TRAcP5b. pQCT scans were acquired at the proximal tibia at day 0 and 28 to measure changes in the total and trabecular vBMD. Following euthanasia, trabecular (Tb) and cortical (Ct) bone microarchitecture from femurs, tibias and L4 vertebrae were assessed using μCT. Femurs were mechanically tested to failure in 3-point bending to determine ultimate load (N) and stiffness (N/mm). Treatment effects were evaluated using 2-way ANOVA. Effects were considered significant at $p < 0.05$. Data reported as mean±SD.

HLU led to loss of bone density and structure that were prevented by ABL. Longitudinal pQCT revealed significant increases in total vBMD in ABL-CON (52±17%) vs. VEH-CON (20±5%); and in HLU-ABL (24±6%) vs. HLU-VEH (-2±3%) (p<0.001 for both). Significant differences were observed in the μCT analysis of the distal femur: Tb.BV/TV, thickness and BMD were 43.7%, 12.9% and 27.4% lower, respectively, in HLU-VEH compared to CON-VEH

(p<0.05 for all). ABL prevented these negative effects, such that Tb.BV/TV, thickness and BMD were 66.5%, 39% and 50.3% higher in HLU-ABL compared to HLU-VEH (p<0.01 for all). A positive impact of ABL on bone morphology was also seen in the CON-VEH rats. CON-ABL had greater femoral stiffness (+22.9%, p=0.03) and ultimate load (+20.5%, p=0.01) than CON-VEH. Vertebral and tibial trabecular parameters mimicked the distal femur parameters. Serum TRAcP5b did not differ among groups, yet both ABL groups had higher OCN levels than the VEH-treated control groups (+63%, p<0.05).

We demonstrated positive effects of ABL on BMD, trabecular bone mass and structure in both ambulating and unloaded rats. These results are consistent with prior studies showing positive effects of ABL on bone mass, structure and strength in OVX and ORX rats. Limits include only male rats and 1 dose of ABL. However, the results observed in this study provide a strong rationale for investigating the ability of ABL to prevent disuse bone loss in humans.

Neuroendocrinology and Pituitary

CASE REPORTS IN UNUSUAL PATHOLOGIES IN THE PITUITARY

Isolated Hypothalamic Langerhans Cell Histiocytosis in an Adult Manifesting as Panhypopituitarism

Alexandra Mikhael, MD[1], Nitesh Gautam, MD[2], Lauren Anne Buehler, MD[1], Mario Skugor, MD[1].
[1]Cleveland Clinic, Cleveland, OH, USA, [2]All India Institute of Medical Science, New Delhi, India.

SUN-278

Background: Langerhans Cell Histiocytosis (LCH) is a rare disease characterized by abnormal proliferation of bone marrow derived histiocytes. Although predominantly a childhood disease, LCH can occur at any age and has an incidence of one to two cases per million in adults. LCH can involve a single organ or present as disseminated disease. Sites most commonly affected are bone, skin, bone marrow and pituitary. Isolated hypothalamic LCH is a rare entity. A few reports of LCH presenting as a hypothalamic mass exist but mainly in children. Treatment of adult LCH is derived from pediatric studies, and no standard of care exists. We report a unique case of an adult with panhypopituitarism secondary to a hypothalamic mass found to be biopsy proven isolated LCH treated with Vemurafenib, a BRAF V600E inhibitor.

Clinical Case: A 66-year-old previously healthy man presented with progressively increasing confusion, cognitive decline and generalized weakness requiring hospital admission. Laboratory evaluation revealed an 8AM cortisol of 2.5 ug/dL (reference [ref] 7.0–25.0 ug/dL), ACTH of 9.3 pg/mL (ref 8–42 pg/mL), TSH of 0.106 uIU/mL (ref 0.35–5.5 uIU/mL), free T4 of 0.67 ug/dL (ref 0.7–1.25 ng/dL), LH <0.2 IU/L (ref 0.5–11 IU/L), FSH 0.6 IU/mL (ref 1–12 IU/L), total testosterone <12 ng/dL (ref 193 - 824 ng/dL), free testosterone <3.3 pg mL (ref 41.7 - 180.2 pg/mL), IGF1 41 ng/mL (ref 33–220 ng/mL) and prolactin of 31.5 ng/mL (ref 3.5–15 ng/mL). Findings were consistent with panhypopituitarism, and he was started on glucocorticoid and levothyroxine replacement therapy. MRI pituitary revealed an 18.1 x 13.8 x 15.8 mm hypothalamic mass with signal intensity alteration in the optic pathway. Patient developed polyuria with a serum sodium of 148 mmol/L (ref 136–145 mmol/L), elevated serum osmolality and low urine osmolality consistent with central DI and was started on oral DDAVP.

The patient underwent right sided neuroendoscopic intraventricular biopsy of hypothalamic mass. Pathology was consistent with LCH with immunohistochemistry staining for CD1a, Langerin and BRAFV600E, with occasional cells staining for CD68, CD163 and S100. Bone marrow biopsy was normal. A NM PET scan revealed a hypermetabolic hypothalamic mass compatible with LCH without evidence of involvement of other sites including the skeletal system. Given histopathologically confirmed BRAF-mutated LCH, treatment with Vemurafenib was initiated. Behavioral changes gradually improved, and repeat MRI brain three months after treatment revealed decrease in size of hypothalamic mass.

Conclusion: Isolated hypothalamic LCH is exceedingly rare. No clear guidelines exist for treatment of LCH in adults. BRAFV600E mutations are found in more than fifty percent of LCH cases and are associated with worse outcomes. This case demonstrates the successful use of targeted BRAF inhibitor therapy in an adult patient with BRAF mutated hypothalamic LCH.

Adipose Tissue, Appetite, and Obesity

ADIPOSE TISSUE BIOLOGY AND OBESITY

Role of Adipose Tissue in Reproduction, Mammary Gland Development, Function and Cancer

Audrey Brenot, PhD, Irina Hutson, MS, Charles Andrew Harris, MD,PHD.
Washington University, Saint Louis, MO, USA.

SAT-588

To investigate the role of adipose tissue in the function of the mammary gland (MG) and reproductive system, we have examined lipodystrophic (LD) mice. LD mice of both sexes are sterile, but fertility was restored in both sexes with leptin injections. In addition, leptin was only needed for initial stages of pregnancy and not for parturition. A transplant of mouse embryonic fibroblasts (MEFs) led to the formation of an ectopic fat pad which also rescued the fertility in both sexes. However, pups born to rescued LD mothers died shortly after birth. We therefore examined the mammary glands of these mothers. MGs from LD mice were rudimentary and lacked terminal end buds. Leptin-injected and MEF rescued LD mice were able to become pregnant, showed normal pregnancy-associated glandular proliferation despite a smaller glandular area, were able to produce a small amount of milk that had grossly normal content of milk proteins and neutral lipids, but could not sustain pups to weaning. In order to separate the individual requirements for 1) adipokines such as leptin, 2) estradiol, and 3) epithelial-adipocyte interactions, we performed a series of experiments with both LD and ob (leptin-deficient) mice that received either estradiol or preadipocyte transplant. The resulting fat pad did not rescue the defect in MG development in LD mice. The defect also was not rescued with estradiol pellets. Ob/ob mice, like LD mice, lack leptin