RESULTS: The mean age for the early onset group was 34 years old, while that of the late onset group was 51 years old. No gender predilection was observed in both groups. The subjects of the early onset group were mostly obese as compared to the late onset group who were mostly overweight. Both groups were mostly smokers, and had a positive family history with an almost equal proportion of females having a history of gestational diabetes. The early onset group had higher hba1c and worse lipid profiles upon diagnosis. The most common comorbid illnesses observed in both groups include hypertension, dyslipidemia, fatty liver and metabolic syndrome. In
terms of macrovascular complications, the frequency of myocardial infarction was higher in the late onset group. For the microvascular complications, the proportion of retinopathy was higher in the early onset group while the frequency of neuropathy was higher in the late onset group. Lastly, for both groups, the duration of diabetes was associated with microvascular complications such that for every year increase in the duration of diabetes, patients were more likely to develop retinopathy and neuropathy.
CONCLUSION: The mean age of Filipinos with early onset diabetes were at least 5 years younger as compared to Caucasians. Moreover, they were more obese, had worse lipid profiles and higher Hba1C levels. Among the macrovascular and microvascular complications, a higher proportion of the late onset group had peripheral neuropathy and had history of myocardial infarction while retinopathy was more prevalent in the early onset group. Lastly, for every year increase in the duration of diabetes, patients were more likely to develop retinopathy and neuropathy.

Neuroendocrinology and Pituitary

CASE REPORTS IN UNUSUAL PATHOLOGIES IN THE PITUITARY

Childhood-Onset, Adamantinomatous Craniopharyngioma and Successful Pregnancy: Results of Kraniopharyngeom 2000/2007

Panjarat Sowithayasakul, MD[1], Svenja Boekhoff, Mrs.[2], Hermann Lothar Muller, MD[2].
[1]Dep. of Pediatrics, Srinakharinwirot University, Bangkok, Thailand, [2]University Childrens Hospital, Klinikum Oldenburg, Oldenburg, Germany.

SUN-289

Background: Hypopituitarism is associated with an increased risk of pregnancy complications, such as abortion, anemia, pregnancy-induced hypertension, placental abruption, premature birth, and postpartum hemorrhage. The advance of assisted reproductive techniques makes it possible to improve the pregnancy rate in hypopituitary patients. Data on female fertility, pregnancy, and outcome of offspring after childhood-onset, adamantinomatous craniopharyngioma (CP) are rare.
Study design: Observational study on pregnancy rate and outcome of offspring after childhood-onset CP in adult, female patients recruited in KRANIOPHARYNGEOM 2000/2007.
Patient cohorts: Since 2000, 451 CP patients (223 f / 228 m) have been recruited with high grade of completeness. 263 CP patients (128 f / 135 m) have reached adult age. 6 of 128 adult, female CP patients (5%) reported on 9 pregnancies giving birth to 10 healthy newborns.
Results: The median age at time of CP diagnosis was 14.9 years. Complete surgical CP resections were achieved in 3 patients. No patient underwent postoperative irradiation. 5 natural pregnancies occurred in 3 CP patients presenting with postoperative normal pituitary function. 4 pregnancies were achieved in 3 CP with hypopituitarism under assisted reproductive techniques (after in median 4.5 cycles, range: 3-6 cycles). Median maternal age at pregnancy was 30 years, ranging from 22 to 41 years. 6 of 10 babies were delivered by caesarean section. Gestational age at delivery was in median 38 weeks, ranging from 34 to 43 weeks; median birth weight was 2,920 gram (range: 2,270-3,520 gram), the rate of preterm delivery (<38 weeks of gestation) was 33%. The rate of breastfeeding was 56%. Enlargements of CP cysts occurred in 2 women during pregnancy. Other severe complications during pregnancy, delivery and postnatal period were not observed.
Conclusions: Pregnancies after CP are rare (5%) and almost half of the patients (45%) achieved pregnancies after assisted reproductive techniques, which are effective and safe in CP patients. With regard to existing deficiencies of hypothalamic-pituitary axes, close monitoring and care by an experienced reproductive physician is necessary. Furthermore, MRI monitoring especially of CP cysts is recommended during pregnancy. Severe perinatal complications, birth defects, and postnatal morbidity of the mothers and their offspring were not observed. Most CP patients complained about their initial lack of information on potential fertility under assisted reproductive techniques.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORTS II

New Diagnosis of Hypophosphatasia in a 79-Year-Old Woman with Low Bone Density

Anjali Manavalan, MD[1], Priyanka Mathias, MD[1], Katayoun Khoshbin, MD[2], Vafa Tabatabaie, MD[1].
[1]Montefiore Medical Center, New York, NY, USA, [2]Shahid Behesti University of Medical Sciences, Tehran, Iran, Islamic Republic of.

MON-341

Introduction: Hypophosphatasia is a rare metabolic bone disease caused by one of several mutations in the ALPL gene which encodes tissue nonspecific alkaline phosphatase (ALP). It is usually diagnosed in childhood and can have a heterogenous clinical presentation depending on the extent of enzyme deficiency. Here we report the oldest known patient with hypophosphatasia.
Clinical Case: A 79-year-old woman with a history of medullary thyroid cancer (MTC) in remission, was referred to our metabolic bone disease clinic for the evaluation and treatment of osteopenia. She had suffered from numerous musculoskeletal complaints for several years and had received a diagnosis of polymyalgia rheumatica. However, her symptoms persisted despite a six month trial of prednisone. Although she had developed dental caries at a young age, she denied premature tooth loss. Her family history was significant for arthralgias and vertebral disc disorders in multiple family members, including both her

children. Her mother carried a diagnosis of rheumatoid arthritis and osteoporosis. The only pertinent physical exam finding was short stature (Height -4'6"). A DEXA scan was performed using a Hologic unit and revealed a T Score of -1.0 at the L-spine and -1.9 at the femoral neck. A FRAX score predicted a 14% risk of major osteoporotic fracture and 4% risk of hip fracture.
Laboratory data revealed: Serum Calcium 9.3 (8.5-10.5 mg/dL), Albumin 4.3 (3.5-5.0 g/dL), ALP 21 (<130 U/L), Vitamin D 25OH 46.2 (>30 ng/ml), Intact PTH 28.3 (15.0-65.0 pg/ml), Vitamin B6 87.7 (2-21 ng/ml).
On review of her medical record, low ALP levels ranging between 20-30 U/L were noted to be present for the last twenty years. Given her history of musculoskeletal complaints, short stature, elevated Vitamin B6 and low ALP, genetic testing for hypophosphatasia was performed. Her results confirmed a known pathogenic mutation in the ALPL gene.
Conclusion: This case highlights the importance of reviewing ALP levels and relevant patient history to rule out hypophosphatasia prior to initiating therapy for osteoporosis. This condition is often unrecognized. Bisphosphonates, which are often the first line of treatment in osteoporosis, are contraindicated in hypophosphatasia as they can increase the risk of atypical fractures.[1] Teriparatide may improve bone density depending on the extent of ALP deficiency. Asfotase alfa is a new agent that is currently available for the management of certain cases of hypophosphatasia.
References:
1."Atypical femoral fractures"during bisphosphonate exposure in adult hypophosphatasia; *Sutton,RA; Mumm,S;Coburn SP; Ericson,KL; Whyte, MP;* Journal of Bone and Mineral Research 2012 May;27(5):987-94.

Neuroendocrinology and Pituitary

ADVANCES IN NEUROENDOCRINOLOGY

Deletion of KNDy Neuron-Specific KISS1 Disrupts Estrous Cyclicity and LH Pulsatility in Female Mice

Nimisha Nandankar, BS[1], Ariel L. Negron, PhD[1], Jon E. Levine, PhD[2], Sally Radovick, MD[1].
[1]RUTGERS/THE STATE UNIV OF NJ, New Brunswick, NJ, USA, [2]Wisconsin Natl Primate Research Ctr, University of Wisconsin, Madison, WI, USA.

SUN-243
Kisspeptin (encoded by *Kiss1*), a neuropeptide critically involved in neuroendocrine regulation of reproduction, is primarily synthesized in two discrete hypothalamic nuclei: the anteroventral periventricular area (AVPV) and arcuate nucleus (ARC). AVPV *Kiss1* is important for the pre-ovulatory luteinizing hormone (LH) surge unique to females as well as estrogen-induced positive feedback control of GnRH and LH. In contrast, ARC *Kiss1* neurons, which largely co-express the neuropeptides NKB and dynorphin (collectively known as KNDy neurons), are major regulators of pulsatile release of GnRH and LH, and mediate estrogen-induced negative feedback control of both GnRH and LH. Previous studies have not fully separated the specific roles for *Kiss1* in the AVPV versus KNDy-ARC neurons in the downstream control of GnRH and LH release. Therefore, we generated a Pdyn-Cre/Kiss1$^{fl/fl}$ (KO) mouse model to target *Kiss1* in the KNDy neurons to differentiate KNDy neuron-specific function from AVPV *Kiss1* function in the maturation and maintenance of the reproductive axis. qRT-PCR data documented a significant reduction of *Kiss1* expression in the mediobasal hypothalamus (containing ARC) compared to controls, whereas *Kiss1* in the preoptic area (containing AVPV) was similar in both KO and controls. Immunofluorescent IHC confirmed a loss of kisspeptin immunoreactivity in the ARC of KO animals while expression in the AVPV remained intact. Markers of pubertal onset (day of vaginal opening and first estrus in females; day of preputial separation in males) were normal in KO mice, suggesting that AVPV *Kiss1* and/or other neural signals may be sufficient for pubertal onset. In addition, body weight throughout pubertal growth was comparable between KO and control animals of both sexes. Interestingly, KO female mice had disrupted estrous cycles presenting with persistent diestrus and a small vaginal opening. In order to test our hypothesis that conditional deletion of *Kiss1* in KNDy neurons disrupts or ablates episodic GnRH/LH pulsatile release, we collected serial tail blood samples from mice at diestrus and measured LH. KO female mice exhibited significantly fewer LH pulses in a 3-hour timespan compared to controls, suggesting that KNDy neurons were functionally compromised. These observations indicate the central role of KNDy neurons in the regulation of GnRH/LH pulsatility and estrous cyclicity. The functional effects of disrupted estrous cyclicity and slower LH pulses observed in KO females are currently under study to assess potential abnormalities in ovarian folliculogenesis and fertility. Future experiments will determine whether ARC *Kiss1* deletion disrupts the KNDy-driven negative feedback response of LH to gonadectomy, as well as address potential sex differences in ARC *Kiss1*-mediated negative feedback control of LH release.

Thyroid

THYROID NEOPLASIA AND CANCER

Technologies of Diffuse Optics in the Diagnosis of Thyroid Cancer

Gloria Beatriz Aranda Velazquez, MD, PhD[1], Giuseppe Lo Presti, PhD[2], Lorenzo Cortese, PhD[2], Davide Contini, PhD[3], Alberto Dalla Mora, PhD[3], Irene Halperin, MD, PhD[1], Felicia Alexandra Hanzu, MD, PhD[1], Antonio Pifferi, PhD[3], Mattia Squarcia, MD[1], Alberto Tosi, PhD[3], Turgut Durduran, PhD[2], Mireia Mora Porta, MD, PhD[1].
[1]Hospital Clinic - IDIBAPS, Barcelona, Spain, [2]ICFO - Institut de Ciències Fotòniques., Barcelona, Spain, [3]Politecnico di Milano - Dipartimento di Fisica, Milan, Italy.

MON-488
Technologies of diffuse optics in the diagnosis of thyroid cancer
BACKGROUND:
The most common tool to test malignancy in the study of thyroid nodules (NT) is ultrasound and fine needle aspiration biopsy (FNAB). However, the sensitivity and specificity of the method and the effectiveness in thyroid cancer are limited; therefore new methods to study thyroid nodules are required. In this way our goal is to introduce hybrid diffuse optical instruments that are capable to measure