anticancer therapy. The aim of this study was to establish the maximum tolerated dose in children with neuroblastoma, with secondary aims of assessing overall response and tumor and organ dosimetry. Here we report current long-term survival and toxicity data. Methods: Eligible pts were 1-30 years old with resistant neuroblastoma. A diagnostic dose of HSA I-131 MIBG was followed by 3 dosimetry scans to assess radiation dose to critical organs and soft-tissue tumors. To prevent prolonged myelosuppression, autologous hematopoietic stem cells were infused 14 days after therapy. Response and toxicity were evaluated on day 60. Dose-limiting toxicity (DLT) was failure to reconstitute neutrophils to greater than 500/μL within 28 days, or platelets to greater than 20,000/μL within 56 days, or grade 3 or 4 nonhematologic toxicity by Common Terminology Criteria for Adverse Events (version 3.0) except for predefined exclusions. Results: First pt was enrolled in June 2008. 15 pts total were evaluable at 12 (n=5), 15 (n=3), and 18 (n=7) mCi/kg. Mean whole-body radiation was 0.23 mGy/MBq, and mean organ doses were 0.92, 0.82, and 1.2 mGy/MBq of MIBG for the liver, lung, and kidney, respectively. Eight pts had 13 soft-tissue lesions with tumor-absorbed doses of 26-378 Gy. MYC-N amplification was present in two of 11 pts with available results. Of the 15 treated pts, 1 had a complete response, 3 had a partial response, 1 had a mixed response and 6 had stable disease. The remaining 4 had progressive disease. Twelve of the 15 evaluable pts received non-protocol therapy after HSA I-131 MIBG, the remaining 3 died due to tumor without further therapy. At 3.6 years of follow-up the overall survival was 26.7% (95% CI, 8.3%-49.6%). As of March 2018, one remaining pt is in long term follow up with an overall survival of 8.4 years. This pt was previously reported to have a secondary malignancy of myelodysplastic syndrome which has been in remission since receiving an allogenic bone marrow transplant in March 2014. Conclusions: HSA I-131 MIBG contributed to long term median survival of two years and was well tolerated. Treatment showed promising activity in the absence of significant nonhematologic toxicity.

Diabetes Mellitus and Glucose Metabolism

TYPE 1 DIABETES MELLITUS

Autoimmune Hypoglycemia: A Treatment Challenge

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SAT-679

Background: Upon evaluation of patients with recurrent hypoglycemia, both exogenous and endogenous causes should be excluded. Among endogenous hyperinsulinemic hypoglycemia (EHH) pathologies, Insulin Autoimmune Syndrome (IAS), even though extremely rare, must be considered. Most cases of IAS have been reported in the Oriental population, mostly Japanese. No gold standard of care for this condition has been established. **Clinical Case:** This is the case of an 82 year-old obese female patient with dyslipidemia, obstructive sleep apnea, and osteoarthritis that comes to the Endocrinology clinics for evaluation due to recurrent episodes of hypoglycemia. She refers that for the last three years she had been presenting with multiple episodes of symptomatic hypoglycemia, even levels as low as 30 mg/dL, requiring multiple hospitalizations. Consequently, she refers a 15-pound weight gain because of multiple daily snacks. Home medications were simvastatin and diclofenac. She denies using insulin, sulfonylureas, other hypoglycemic agents, alcohol, or illicit substances. Abdominal MRI and PET CT scan were remarkable only for an atrophic pancreas without focal masses. Patient was hospitalized for a supervised 72-hour fast, resulting in severe hypoglycemia within 14 hours with elevated insulin levels at 46.3 uIU/mL (1.7-31.0 uIU/mL), elevated C-peptide levels at 5.79 ng/mL (0.9-4.3 ng/mL) and elevated insulin antibodies 53μU/mL (<5μU/mL). Patient showed sufficient hepatic reserve after glucagon administration as well as intact cortisol and growth hormone axis upon severe hypoglycemia. With these results, a diagnosis of IAS was made; not associated with other autoimmune diseases, or with medications with sulfhydryl groups, such as the cases already reported on literature. This condition represents a therapeutic challenge because there is no gold standard of care. Literature recognizes diverse treatment options that range from diet modification to more aggressive therapies, including plasmapheresis and immunosupressants. Our patient was managed with diet modification including frequent snacks and Diazoxide with the goal of decreasing insulin levels and inducing hyperglycemia. Diazoxide therapy achieved a steady euglycemic state and decreased insulin antibodies. Patient developed intolerable bilateral lower extremity edema and treatment was modified to complex carbohydrates, frequent snacks in the daytime and Diazoxide only at bedtime, which is the longer fasting period. Patient has remained without episodes of hypoglycemia and diabetes has not been diagnosed since starting treatment two years ago. **Conclusion:** Early recognition of IAS is essential in order to avoid unnecessary studies and procedures which could delay management. Although no gold standard therapy has been identified for this condition, our case report identifies Diazoxide as a compelling medical treatment.

Adrenal

PROGRESS IN ADRENAL CORTEX AND MEDULLA RESEARCH

Novel Lipidome Signature in Active Cushing Syndrome Revealed by UHPLC-MS Metabolomics

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OR03-05

Background: Alterations in circulating amino acids, polyamines and acylcarnitines have been reported in patients with endogenous chronic hypercortisolism. However, lipid metabolites profiling and its interplay with the serum metabolome and degree of hypercortisolism in patients with active Cushing syndrome (CS) has not been previously assessed. **Objective:** To identify new metabolomic biomarkers associated with active CS.
Methodology: Multiple UHPLC-MS platforms were used to analyze the metabolome of serum samples obtained from 25 patients with active endogenous CS and 25 controls subjects matched by propensity score (sex, BMI, T2D, DLP, HBP).
Results: Metabolome of CS patients was deeply disrupted with 122 (27%) of the assessed metabolites significantly altered (p adj. <0.05) out of which 5 bile acids resulted with the highest perturbation (> 2-fold decrease). From the altered metabolites, 3 amino acids (AA), 2 acylcarnitines (ACs), 2 ceramides (CER) and 5 glycerophospholipids showed direction of effect independently associated with 24-h urinary free cortisol (MS) levels. A highly discriminant (AUC 96%) metabolome signature (n=59) characterized by lower levels of AA, ACs, polyunsaturated fatty acids (PUFA) and monoglycerophosphocolines (MGPC) together with increased levels of triacyclglycerols (TG), CER, diacylglycerophosphocholines (DGPC) and cholesteryl esters was identified and cross-validated (R^2Y= 0.92, Q^2Y= 0.68) using PLS-DA VIP scores >1.5. PUFA omega-6, and alanine, aspartate and glutamate metabolism resulted the most impacted canonical pathways (q-stat 19.7, 10.8 (p<0.001). Finally, topological network analysis detected 158 pairwise differential correlations (p <0.005, 10,000-fold permutation) between 141 metabolites due to CS where the acylPC (P-18:1/0:0) resulted a key metabolite in the network (betweenness =0.117 & closeness centrality =0.467).
Conclusion: Active Cushing syndrome leads to a global proatherogenic shift in the circulating ceramides, glycerophospholipids and sphingolipids metabolites which are independently associated to the levels of urinary free cortisol being potential biomarkers of patients' cardiovascular risk.

Reproductive Endocrinology

SEX, GENDER, AND HORMONES

Risk Factors For Low Baseline Bone Mineral Density In Gender Diverse Youth.

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OR27-04

Background
Sex steroids such as testosterone and estrogen are necessary for accumulation of bone mass. Transgender youth treated with gonadotropin releasing hormone analogues (GnRHa) to block natal puberty for gender-affirming care are at risk of low bone mineral density (BMD). Previous studies indicate that transfemale patients assigned male at birth (AMAB) have low BMD at baseline, during and after GnRHa treatment despite cross hormone treatment. Transmales assigned female at birth (AFAB), however, have normal BMD at baseline that decreases upon GnRHa treatment, with normalization upon cross hormone therapy. The reason(s) for the low baseline BMD in transfemales is unclear. We aimed to assess the baseline characteristics of transgender youth at a single multidisciplinary gender clinic prior to medical intervention and determine factors associated with BMD.
Methods
This is a retrospective chart review of patients <19 years old evaluated in the gender clinic. Dual-energy x-ray absorptiometry (DXA) scans were obtained prior to initiation of GnRHa or cross-hormone therapy per Endocrine Society guidelines for the treatment of gender dysphoria. We included patients with DXA scans completed prior to initiation of treatment with GnRHa or cross gender hormones and excluded those with concurrent medical diagnoses that may affect bone density. Data collected were bone mineral density (BMD) Z-scores, anthropometric data, vitamin D and calcium levels, and calcium intake. Multivariable linear regression models were used to assess the impact of vitamin D levels, height Z-score, weight Z-score, and BMI Z-score on subtotal body BMD Z-score, adjusted for sex assigned at birth and age.
Results
Sixty-four patients were included in our analysis. Of these, 73% were AMAB and 27% AFAB. Gender identity was male in 14%, female in 44%, and non-binary in 42%. Average height Z-score was 0.12, weight Z-score 0.27, and BMI Z-score 0.22 (using sex assigned at birth). Subtotal body BMD Z-scores were greater than zero in 11%, between zero and greater than -2 in 59%, and less than or equal to -2 in 30% of tested patients. AMAB patients had lower BMD Z-scores compared to those AFAB (p<0.05 for all Z-scores). There was a positive association with BMI, height, and weight Z-scores and increasing BMD Z-scores after adjusting for sex assigned at birth and age (p<0.05 for all Z-scores). Patients who consumed <2 servings of calcium per day had lower BMD Z-scores (p<0.05 for all Z-scores). Average vitamin D level was 24 ng/ml (+/- 9.5 SD) with no significant association with BMD Z-scores (adjusted for sex assigned at birth).
Conclusions
Patients AMAB and patients with calcium intake of < 2 servings/day are associated with lower baseline BMD in a cohort of adolescents seen in a multidisciplinary gender clinic. Height, weight, and BMI are associated linearly with BMD Z-score, following patterns previously described in other populations.

Reproductive Endocrinology

MALE REPRODUCTIVE HEALTH - FROM HORMONES TO GAMETES

Treatment of Hypogonadal Men with a New Oral Testosterone Undecanoate (TU) Formulation Improves Psychosexual, Well-Being and Body Composition and Bone Density Parameters

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