palmitic acid (PA, 0.5 mM) or vehicle for 24 hours. The exosomes secreted into the culture media were purified and next generation sequencing analysis of the miRNAs contained in these microvesicles performed. Over 200 known miRNAs were identified in the samples. Heat map analysis of the 50 miRNAs most highly expressed across all samples showed significant differences based on sex and PA exposure, as well as differential changes between sexes in response to PA. Of the 25 most highly expressed miRNAs, 24 were significantly different between males and females (Benjamini-Hochberg FDR corrected p-values, between p<0.05 and p<0.0001). In response to PA, 190 miRNAs changed significantly in female astrocytes, but only 92 in male astrocytes; hence, after exposure to PA, 59 miRNAs were identified to be differentially expressed in exosomes of male and female astrocytes. Gene ontology enrichment analysis indicated that modifications in the miRNAs identified here could be related to biological processes such as response to cell injury; as might be expected, but also protein polymerization, receptor trafficking, intracellular signaling, microtubule polymerization, vasodilation, and cytokinesis. Our results suggest that astrocytes communicate changes in nutrient availability to other cell types through miRNAs. Verification and determination of the specific responses to the modification in these miRNAs are now necessary.

Bone and Mineral Metabolism

Bone and Mineral Metabolism

X Linked Hypophosphatemic Rachitism: Case Report in Adult Patient

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MON-366

BACKGROUND: X linked hypophosphatemia (XLH) is a rare genetic disorder, with an estimated prevalence of 1:20,000 live births resulting from a mutation in the PHEX gene (phosphate regulatory endopeptidase), which causes increased levels of circulating fibroblast growth factor 23 (FGF23), reducing both renal reabsorption of phosphate and serum levels of 1,25-dihydroxyvitamin D3, causing chronic hypophosphatemia, rickets and osteomalacia. CLINICAL CASE: a 34 year old female with a height of 1.34 meters whose past medical history began at the age of three years old with a diagnosis of short stature, associated with genu varum and low serum phosphate levels. She received treatment with phosphate salts and calcitriol until eleven years old. During childhood, she underwent several surgical procedures to correct the genu varum. After stopping the treatment, she has presented four fractures in the lower extremities: bilateral femur, tibia and fibula that have required six surgical interventions (osteotomy, osteosynthesis and external fixation); the last surgery was performed in June of 2019; in addition, she has had multiple dental abscesses that required several oral surgeries. Current laboratory tests report: calcium 8.89 mg/dL (8.6-10), 24-hour urine calcium 72.17 mg (100-300) with urinary volume 1470 ml/24 h, serum creatinine 0.44 mg/dL (0.51-0.95), urine creatinine 43.72 mg/dL (29-226), serum phosphate 1.78 mg/dL (2.5-4.5), urine phosphate 17.75 mg/dL (40-136) PTH 86 pg/mL (15-65), alkaline phosphatase 134 ug/dL (35-104), 25OH vitamin D 23 ng/mL (30-40). Tubular resorption of phosphate corrected for glomerular filtration rate (Tm/PGF): 1.6 mg/dL (<2.8), Tubular Reabsorption of Phosphate (TRP) 89.96% (>80). Densitometry revealed a normal bone mineral density (BMD) in lumbar spine and hip. Radiographs of the lower limbs showed a difference of 19 mm of the right lower limb in anatomical length and 13 mm in functional length. A HLX genetic panel was performed, with a result of a definitely pathogenic Gene PHEX linked to chromosome X, with a pathological mutation 22 151 705 G> A Trp456. The patient started treatment with calcitriol and dibasic phosphorus one month ago because of bone and muscle pain, stiffness, functional limitation, periodontal disease, recent hip fracture and indication of left hip replacement. She is candidate for burosumab (Anti-FGF23 Monoclonal Antibody) treatment.

CONCLUSIONS: We present the case of adult patient with X-linked hypophosphatemia. Early treatment with phosphate is essential to avoid bone deformities. In adult patients, identifying pain, fractures or requirement of bone surgery, are indications for continuing treatment to improve quality of life, either with phosphate and calcitriol or with the new option, burosumab for pain control, improving functionality and stiffness.

Diabetes Mellitus and Glucose Metabolism

Diabetes Mellitus and Glucose Metabolism

CLINICAL AND TRANSLATIONAL STUDIES IN DIABETES

Glucocorticoid-Induced Hyperglycemia, Higher Mortality and Morbidity? a Retrospective Analysis

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MON-650

Introduction: Glucocorticoid (GC)-induced hyperglycemia is a frequent side effect in hospitalized patients. Guidelines recommend treat-to-target treatment between 6-10 mmol/l with insulin, but patient-specific outcome has not been well-studied.

Methods: In this retrospective data analysis, all patient records of a Medical University Clinic from January 2014 to April 2018 were screened for GC administration. We investigated the incidence of hyperglycemia in hospitalized patients after administration of at least 10 mg prednisolone equivalents daily and a minimal length of stay of 3 days. The primary combined endpoint consisted of mortality, cardiovascular events, and infections until 30 days after admission.

Results: 2424 hospitalized patients received systemic GCs and met the inclusion criteria, of which 511 patients (21%) had an underlying diagnosis of diabetes. The overall
incidence for GC-induced hyperglycemia was 33.5% (812 patients) and 3.7% of patients (n=89) had at least one documented hypoglycemia during the hospital stay. Compared to normoglycemic patients, GC-induced hyperglycemia was associated with a 40% increase in the risk for the combined primary endpoint (unadjusted odds ratio 1.39, 95%CI 1.16-1.66). This was also true after adjusting the analysis for age, Charlson comorbidity index and GC dose (adjusted odds ratio 1.68, 95% CI 1.25-2.26). Hypoglycemia was also associated with a doubling in the risk for the combined primary endpoint (odds ratio 1.95, 95% CI 1.2-3.17).

Discussion/Conclusion: Mortality, cardiovascular events and rate of infections were markedly higher in patients with GC-induced hyperglycemia compared to normoglycemic patients. Hypoglycemia was infrequent, but also associated with higher risk for adverse outcome. Future studies should evaluate whether glucose control with novel treatment modalities has a beneficial effect on clinical outcomes in patients with GC-induced hyperglycemia.

Thyroid

HPT-AXIS AND THYROID HORMONE ACTION

Phthalates Expose and Thyroid Parameters in Euthyroid Patient with Type 2 Diabetes: Sex Specific Associations

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SAT-440

Phthalates are ubiquitous in different environmental exposure media around the world. Recent years, issues on the relationships of phthalates and endocrine disorders raise attention. Evidence of thyroid disruption as a result of phthalates expose among euthyroid participants with diabetes is very limited. We aimed to evaluate the association between phthalate and thyroid function, and to explore whether thyroid autoimmunity mediated this association. Concurrent urine and blood samples were collected from 538 participant in METAL study. We measured urinary concentrations of ten phthalate metabolites (urinary creatinine adjusted), along with serum levels of thyroid-stimulating hormone (TSH), free thyroxin (FT\(_4\)), free triiodothyronine (FT\(_3\)), thyroid peroxidase antibody (TPOAb) and thyroglobulin antibody (TgAb). Euthyroidism was defined as TSH within normal range. After adjusting for age, sex (only with the entire sample), BMI and smoking status, linear regression analyses showed exactly opposite directional results among men and women. TSH levels were negatively associated with mono-2-ethyl-5-carboxypentylphthalate (MECPP), mono-2-ethyl-5-hydroxyethylphthalate (MEHHP), mono-2-ethyl-5-oxohexylphthalate (MEOHP), mono-2-carboxymethyl-hexyl phthalate (MCMHP) and sum of di (2-ethylhexyl) phthalate metabolites (ΣDEHPm) in men, but positively associated with monoisobutylphthalate (MiBP) and monon-butylyphthalate (MnBP) in women. Meanwhile, FT\(_4\) was positively associated with mono-2-ethylhexylphthalate percentage (%MEHP) in men, but negatively associated with MnBP, MEOHP and MCMHP in women. Further, in women, TPOAb was increasing along with the increased level of MEH and %MEHP. In the mediation analysis, TPOAb demonstrated a mediating effect whereby MEHP or %MEHP had a positive effect on TSH and a negative effect on FT\(_4\), only in women (all \(P<0.05\)). We got a conclusion that among euthyroid participants with diabetes, urinary phthalate metabolites maybe associated with altered TSH, FT\(_4\) and TPOAb levels in different direction in men and women. Further, our present study maybe the first to suggest that TPOAb might be a potential mediator of the association between phthalate metabolites and thyroid function in women.

Adrenal

ADRENAL - CORTISOL EXCESS AND DEFICIENCIES

Telomere Length as a Novel Prognostic Marker of Cushing Complications

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MON-190

Telomeres are small sequences at the end of chromosomes, protecting them from abnormal degradation. Certain conditions, like cancer, have been associated with changes in telomere length (TL), which, in turn, may predict outcomes of the disease. Studies on the effect of cortisol on TL have not led to conclusive results or are limited in stress induced hypercortisolemia. Moreover, no study has focused on effects of persistent endogenous hypercortisolemia during childhood, a known important period for telomere modifications. We hypothesized that TL is affected in pediatric patients with endogenous Cushing syndrome (CS) and it correlates with markers and complications of hypercortisolemia.

We studied 10 pediatric patients (mean age: 13.3 years, 7 females), diagnosed and treated successfully for Cushing disease. TL of total lymphocytes and their subtypes (Naive T-cells, Memory T-cells, B-cells and NK-cells) were measured before and 1 year after treatment. TL was compared to age-matched control samples (6-8 per age group) and was correlated with clinical and biochemical characteristics. Paired or two-sample parametric or non-parametric statistical tests were performed, as appropriate.

Lymphocyte TL of patients with active CS did not differ from controls (\(p=.43\)). B-cell and NK-cell TLs were shorter after cure compared to active CS [mean B-cell TL difference: -1.44 Kb (-15%), \(p=0.01\); mean NK-cell difference: -0.51 Kb (-7%), \(p=0.10\)] and controls [mean B-cell TL difference: -0.98 (-11%), \(p=0.039\]; mean NK-cell difference: -1.3 Kb (-16%), \(p=0.005\)]. Lymphocyte TL in active CS and the change of TL before and after cure did not correlate with measured markers of hypercortisolemia (morning and