optimized criterion has greatly improved the sensitivity and may be more suitable for skipping confirmatory tests of PA.

Diabetes Mellitus and Glucose Metabolism

METABOLIC INTERACTIONS IN DIABETES

Body Composition Assessment in Clinical Practice: Use in Rheumatoid Arthritis and Hypogonadism

Marina Sousa da Silva, MD[1], Joao Lindolfo Borges, MD[2].
[1]Centro de Pesquisa Clínica do Brasil, Braslia, Brazil, [2]Centro de Pesquisa Clínica do Brasil, Brasilia, Brazil.

SUN-650

BACKGROUND: DXA is an accessible, non-invasive method, also used for body composition assessment, standing out for regional composition analysis. In clinical practice, the analysis of body composition is relevant by differentiating lean (fat-free) mass from fat mass. The higher the fat to lean mass ratio, the greater the obesity-related comorbidities.

CLINICAL CASE:

Case 1: A 22-year-old male, BMI 21kg/m2, with rheumatoid arthritis (RA) and on chronic glucocorticoid (GC) performed a DXA to evaluated body composition. The first analysis, during GC use, showed 26.1% fat (14.6kg) despite the low BMI. The patient, evolved stable from RA, and was able to stay out of GC for 2 years, with no other interventions. A new DXA showed a decrease in fat percentage to 12.6% (6.2kg), a reduction in total body weight (-7kg) and an increase in lean mass (+1.2kg). Within 16 months of GC reintroduction, the fat percentage increased up to 36.8% (23.8kg), the total weight increased by 15.6kg and the lean mass decreased by 2.1kg.

Case 2: A 40-year-old male with hypogonadism showed 37% fat (33.8kg) on first DXA evaluation. Testosterone replacement was started, and a new DXA was performed after 10 weeks, and although the total weight increased by 3.1kg, there was a decrease in fat mass to 33.5% (31.6kg) and an increase of 5.3kg in lean mass. After 3 years, there was a reduction to 27.1% of fat (24.5kg) and, after 4 years of therapy initiation, the percentage of fat was 26.9% (24.5kg). There was no change in diet or exercise.

CONCLUSION:

The exposed cases highlight the importance of body composition assessment in patients with conditions that interferes with energy metabolism. The patient on chronic GC use, after medication withdrawal, presented a significant decrease in fat mass, more pronounced in the android percentage. The reintroduction of the CG showed an increase in fat percentage, with android predominance. The patient with hypogonadism, in the second evaluation performed with only 10 weeks of treatment with testosterone, evolved with a reduction in fat mass associated with an increase in lean mass, besides a reduction in the android percentage.

The reported cases illustrate everyday clinical situations in which disease vs. treatment significantly changes body composition. Assessment of body composition is essential in patients exposed to conditions that interfere with energy metabolism since obesity is associated with chronic comorbidities and cardiovascular outcomes.

Adipose Tissue, Appetite, and Obesity

ADIPOSE TISSUE BIOLOGY AND OBESITY

Molecular Markers of Beige Adipose Following ESR1 Knockdown in the Mediobasal Hypothalamus of Adult Female Rhesus Monkeys

Sindhura Bandaru, MD[1], Matthew T. Flowers, PhD[2], Sona Perlin, B.S. Neurobiology | Undergraduate[1], Molly M. Willging, BS[3], Emily P. Greinwald, B.S[3], Jon E. Levine, PhD[4], David Howard Abbott, BSC,PHD[5].
[1]University of Wisconsin, Madison, WI, USA, [2]Univ of WI-Dept. of Neuroscience, Madison, WI, USA, [3]Univ of WI-Wisconsin National Primate Rsch Ctr and Endocrinology-Reproductive Physiology Training Program, Madison, WI, USA, [4]Univ of WI-Dept of Neuroscience and Wisconsin Natl Primate Research Ctr, Madison, WI, USA, [5]Univ of WI-Dept. of Ob/Gyn and Wisconsin Natl Primate Rsch Ctr, Madison, WI, USA.

SAT-587

Our studies in female marmoset monkeys show that the ablation of ovarian estradiol (E_2) production fails to alter energy homeostasis or body fat accumulation. Peripheral E_2 may therefore not play a crucial role in metabolic regulation in female primates. shRNA-mediated knockdown of ESR1 expression in the hypothalamic ventromedial nucleus (VMN) in adult female rodents, however, induces obesity and suggests ESR1 is a hypothalamic target for E_2 regulation of energy homeostasis, and likely mediates thermogenesis in brown/beige adipose depots. In female primates, including humans, the hypothalamic estrogen receptor mediating metabolic regulation is unknown. To test the hypothesis that ESR1 mediates female primate regulation of energy homeostasis, 11 ovary intact, adult female rhesus macaques, pair housed with female peers, received five 12µl MRI-guided MBH infusions into the rostral-to-caudal extent of both right and left VMN. Each infusion comprised a gadolinium contrast agent and ~3–4 x 10^{10} adeno-associated virus 8 (AAV8) particles containing either an shRNA specific for ESR1 (n=6, ERaKD) or scrambled shRNA (n=5, control). Mid-surgery MRI scans identified targeting accuracy. ~ 1.5 yrs following AAV8 infusion, pronounced gain in BMI enabled conversion of 83% of ERaKD females to overweight/obese compared to 20% of controls (p=0.08). Percent increase in BMI remained intermittently greater ($p<0.05$) than controls thereafter. Adipose depots were harvested at necropsy ~2.5–3 yrs following treatment. Total RNA was isolated using the Qiagen AllPrep DNA/RNA/miRNA Universal kit. RNA was reverse transcribed with High-Capacity cDNA Reverse Transcription kit (Applied Biosystems). All quantitative real-time PCR (qRT-PCR) were performed on a StepOnePlus System using Power SYBR Green master mix (Applied Biosystems). Primer sequences were designed using NCBI Primer-Blast. Expression of TATA-box binding protein (TBP) was used as the internal control housekeeping gene. The relative expression of target genes was measured using the comparative cycle threshold (Ct) method with results expressed as target mRNA expression relative to TBP using the formula 2^-delta Ct. Upper body beige adipose represents an organ system in primates, including humans, involved in thermogenesis. Axillary beige adipose depots in ERaKD females, however, did not exhibit significantly diminished

gene expression for selected markers of beige adipocytes, including PAT2, CD137 and C/EBPβ, compared to control females. More crucially, thermogenically relevant UCP1 expression also did not differ between ERaKD females and controls. Taken together, these results suggest that knockdown of VMN ESR1 in adult female monkeys, while inducing modest weight gain after 1.5 years, may not markedly alter beige adipose gene expression of initially selected thermogenically relevant genes.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY

Expression of Programmed Death-Ligand 1 (PD-L1) in Human Pituitary Neuroendocrine Tumor

Valentine Suteau, MD[1], Alexandre Collin, MD[2], Philippe Menei, MD,PhD[3], Patrice Rodien, MD,PhD[1], Marie-Christine Rousselet, MD,PhD[2], Claire Briet, MD,PhD[1].

[1]Département d'Endocrinologie, CHU Angers; Institut MITOVASC, UMR CNRS 6015, INSERM 1083, ANGERS, France, [2]Département de Pathologie Cellulaire et Tissulaire, CHU Angers, ANGERS, France, [3]Département de Neurochirurgie, CHU Angers, ANGERS, France.

MON-287

Introduction

Some Pituitary NeuroEndocrine Tumors (PitNET) present an aggressive evolution and are resistant to standard management. Immunotherapy have shown durable efficacy in a variety of malignancies. The aim of this study was to explore the programmed death-ligand 1 (PD-L1) expression in varied subtypes of pituitary adenomas with assessment of their clinical behavior at diagnosis and follow-up.

Methods

We conducted a retrospective monocentric study, including all patients operated a PitNET between 2012 and 2018. PDL-1 immunostaining were performed using an European Conformity-In-Vitro-Diagnostic labeled anti-PDL1 antibody (Clone 22C3). PD-L1 immunostaining was evaluated as the percentage of tumor cell showing positive membrane staining, into four grades: grade 0 = <1%, grade 1 = 1 to 5%, grade 2 = 6 to 49% and grade 3 = ≥ 50%. PD-L1 expression was compared with tumor features (secretion, proliferation, invasion) and outcome.

Results

The study included one hundred and thirty-nine PitNET, including 84 (60%) nonfunctioning adenomas. Twenty-five PitNET were PD-L1 positive (18%), including 3 grade 3, 8 grade 2 and 14 grade 1. PD-L1 expression was not different between functioning and non-functioning adenomas (p=0.26). Among sixteen tumors with proliferative markers (Ki-67 ≥ 3% and p53 positive), only one was PD-L1 positive.

Conclusion

In our series, pituitary tumors rarely exhibit PD-L1 expression and this immune marker did not seem to be associated with any biological characteristic or behavior of the pituitary

tumors. Thus, PD-L1 staining is necessary before considering PD-L1 blockage in PitNET, in case of therapeutic impasse.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY

TSH Deficiency in Patients on Somatostatin Analog for TSH-PitNET

Frederic Illouz, MD[1], Philippe Chanson, MD,MS[2], Emmanuel D. Sonnet, MD[3], Thierry Christian Brue, MD,PHD[4], Amandine Ferriere, MD[5], Marie-Laure Raffin-Sanson, MD, PhD[6], Marie-Christine Vantyghem, Md, PhD[7], Gerald Raverot, MD,PhD[8], Mathilde Munier, PhD[9], Patrice Rodien, MD,PHD[1], Claire Briet, MD, PhD[1].

[1]CHU ANGERS, Angers, France, [2]Hosp Bicetre, Le Kremlin-Bicetre, France, [3]CHU BREST, Brest Cedex, France, [4]Hopital de la Timone, Marseille, France, [5]CHU BORDEAUX, Bordeaux, France, [6]Ambroise paré, Boulogne-billancourt, France, [7]CHU LILLE, Lille, France, [8]Hospices Civils de Lyon, Lyon Cedex 03, France, [9]Centre de référence des maladies rares de la thyroïde et des Récepteurs hormonaux, Institut 39 MITOVASC, Angers, France.

MON-288

Background: Somatostatin analogs (SSA) are efficiently used to control central hyperthyroidism in patients with thyrotropin-secreting pituitary neuroendocrine tumor (TSH-PitNET). The aim of this study was to describe the frequency of thyrotropin (TSH) deficiency under SSA in patients with TSH-PitNET. *Methods*: We retrospectively recruited patients presenting a central hyperthyroidism due to TSH-PitNET. Inclusion criteria were patients treated in first, second or third line by short or long-acting SSA, with central hyperthyroidism before SSA. Patients treated by radiotherapy or dopamine agonist were excluded. TSH deficiency was defined by either a low FT4 or low FT4 and FT3, associated with non-elevated TSH concentrations during SSA therapy. We analyzed the frequency of TSH deficiency and the characteristics of patients with or without TSH deficiency. *Results:* 46 patients were included in the study. SSA were used as the first-line therapy in 21 of 46 patients (46%). Central hyperthyroidism was controlled in 36 of 46 patients (78%). TSH deficiency appeared in 7 of 46 patients (15%), after a median time of 4 weeks (4–7) after the starting of SSA, and for a median duration of 3 months (2.5–3). The TSH deficiency occurred after 1 to 3 injections of long-acting SSA. There were no differences in terms of clinical and hormonal features and size of adenomas between patients with or without TSH deficiency. *Conclusions:* In patients with central hyperthyroidism due to TSH-PitNET, SSA can induce TSH deficiency. Thyrotropic function should be assessed before each injection of SSA in order to adapt the frequency of injection when control of thyrotoxicosis rather than tumor reduction is purpose of the treatment.

Reproductive Endocrinology

REPRODUCTIVE ENDOCRINOLOGY: REPRODUCTIVE FUNCTION AND DYSFUNCTION ON DEVELOPMENT

Does Androgen Exposure Result in Germline Transmission of PCOS-Like Phenotypes and Can It Be Reversed?

Haojiang Lu, MSc[1], Maria Manti, MSc[1], Sanjiv Risal, PhD[1], Eva Lindgren, Sverige[1], Anna Benrick, PhD[2], Qiaolin Deng, PhD[1], Elisabet Stener-Victorin, PHD[1].