

and falls. Neurologists changed her medication from Copaxone to Tecfidera and patient improved clinically and has not had any further flares. Notably, she never received any dopaminergic agent to treat her prolactin level, which improved significantly. Our case illustrates that prolactin may be a disease marker in the acute phase of MS and can be restorative. Further more it will improve when the MS is treated and we should not use any dopamine agonist.

## Diabetes Mellitus and Glucose Metabolism

### METABOLIC INTERACTIONS IN DIABETES

#### *P300 and CBP Are Necessary for Skeletal Muscle Insulin-Stimulated Glucose Uptake*

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#### SUN-670

**Introduction:** Akt is a critical mediator of insulin-stimulated glucose uptake in skeletal muscle. The acetyltransferases, E1A binding protein p300 (p300) and cAMP response element-binding protein binding protein (CBP) are phosphorylated and activated by Akt, and p300/CBP can acetylate and inactivate Akt, thus giving rise to a possible Akt-p300/CBP axis. Our objective was to determine the importance of p300 and CBP to skeletal muscle insulin sensitivity.

**Methods:** We used Cre-LoxP methodology to generate mice with a tamoxifen-inducible, conditional knock out of *Ep300* and/or *Crebbp* in skeletal muscle. At 13-15 weeks of age, the knockout was induced via oral gavage of tamoxifen and oral glucose tolerance, *ex vivo* skeletal muscle insulin sensitivity, and microarray and proteomics analysis were done.

**Results:** Loss of both p300 and CBP in adult mouse skeletal muscle rapidly and severely impairs whole body glucose tolerance and skeletal muscle insulin sensitivity. Furthermore, giving back a single allele of either p300 or CBP rescues both phenotypes. Moreover, the severe insulin resistance in the p300/CBP double knockout mice is accompanied by significant changes in both mRNA and protein expression of transcript/protein networks critical for insulin signaling, GLUT4 trafficking, and metabolism. Lastly, in human skeletal muscle samples, p300 and CBP protein levels correlate significantly and negatively with markers of insulin resistance.

**Conclusions:** p300 and CBP are jointly required for maintaining whole body glucose tolerance and insulin sensitivity in skeletal muscle.

## Thyroid

### HPT-AXIS AND THYROID HORMONE ACTION

#### *Impact of Fasting on Plasma Thyrotropin in Hypothyroid Patients Taking Levothyroxine During Ramadan (IFT-R Study)*

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#### SAT-443

#### *Impact of Fasting on Plasma Thyrotropin in hypothyroid patients taking levothyroxine during Ramadan (IFT-R Study)*

**Background and Aim:** We previously showed in a retrospective analysis that the plasma TSH rises significantly post-Ramadan in levothyroxine-treated hypothyroid patients, possibly as a result of changes in the eating habit during the non-fasting period from dusk until dawn. The aim of this study is to determine the best time for taking levothyroxine during Ramadan in order to minimize changes in thyroid function tests.

**Methods:** in a randomized prospective design, hypothyroid patients taking levothyroxine for greater than 6-months were randomized to take levothyroxine at one of the following 3 times during Ramadan: (group 1) at dusk after a prolonged fast and 30-minutes before the Iftar meal, (group 2)  $\geq$  3-hours after the Iftar meal, or (group 3) at dawn 30-minutes before Suhur meal. Patients were instructed to allow a minimum of 3-hours between the last meal and levothyroxine and to refrain from eating and drinking for at least 30-minutes after taking levothyroxine. Thyroid function tests were performed within 3-months before Ramadan and within 6-weeks post Ramadan. To estimate intent-to-treat effects, we examined pre- and post-Ramadan thyroid function tests in relation to the assigned levothyroxine administration times.

**Results:** 147 patients were randomized into the study and the respective number of patients in groups 1, 2 and 3 were 50, 46 and 51. The mean age of participants was  $43.5 \pm 12.4$  years [range 21.0-86.0] and 78% were females with no statistical differences in the mean age or gender distribution between the 3 groups. The respective pre-Ramadan mean TSH values for the 3 groups were 2.49 mIU/L, 2.16 mIU/L and 3.37 mIU/L with no significant differences at baseline. Post-Ramadan mean TSH values were 2.47 mIU/L, 4.26 mIU/L and 3.85 mIU/L for groups 1, 2 and 3 respectively. The pre- and post-Ramadan mean TSH differences were significant only for group 2, who took levothyroxine 3-hours post-Iftar (P-value 0.041). There were no significant differences in the free-T4 levels across the 3-groups before and after Ramadan. In a subset of 85 patients, the preferred times for levothyroxine administration during Ramadan were 44.7% before Iftar, 50.6% post-Iftar and only 4.7% were in favor of taking the medication before Suhur meal.

**Conclusions:** Levothyroxine-treated hypothyroid patients who took levothyroxine 3-hours after the main Iftar meal showed a significant increase in plasma TSH post-Ramadan, possibly reflecting a reduced time period

between levothyroxine administration and the previous meal. There was no significant change in the mean plasma TSH for patients taking levothyroxine at dusk before Iftar or at dawn before Suhur. The least patient-preferred time for taking levothyroxine was at dawn before Suhur possibly due to time constraints before the start of fasting.

## Thyroid

### THYROID CANCER CASE REPORTS II

#### *Papillary Thyroid Carcinoma in the Thyroglossal Duct*

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#### MON-455

#### PAPILLARY THYROID CARCINOMA IN THE THYROGLOSSAL DUCT BACKGROUND

In the thyroglossal duct (TD) there are remains of thyroid tissue in 1-40%. Thyroid cancer diagnosed in this duct is an uncommon finding, with a prevalence of less 1% and must meet these criteria: identify the TD, locate remains of carcinoma in it; absence of cancer in the thyroid gland and presence of thyroid follicles in the TD. We present a patient with thyroid cancer in the TD.

#### CLINICAL CASE

63-years-old-woman. 18 months ago, she noted a submandibular tumor associated to asthenia, weight loss and tremor. On physical examination: 3cm tumor, increased consistency, near to the hyoid bone and 1.5cm left cervical adenopathy. Blood analysis: TSH 0.01 (0.2-4.5) and FT4 5.53 (0.9-1.7). Hyperthyroidism was diagnosed and she started Tiamazol 10mg/bid and propranolol 20mg/tid.

Thyroid US: diffuse goiter. Soft tissue US: heterogeneous mass 39x15x26mm in midline of suprathyroid region suggestive of neoformative process.

Cervical CT scan: solid, heterogeneous, neoformative tissue, located in the midline, infiltrating prelaryngeal muscles in contact with hyoid bone. Cervical adenopathy in group II on right side and group III and IV on the left side. Increase in thyroid gland volume.

FNA US guided of suprathyroid tumor was performed: cytology compatible with papillary thyroid carcinoma, Bethesda VI. FNA left adenopathy: compatible with metastasis papillary carcinoma.

Midline tumor exeresis in relation to a TD (Sistrunk surgery), total thyroidectomy plus left lymph node dissection group IIA, IIB, III, IV and V was performed.

Surgical findings: Right lobe thyroid 4x3x2cm with 1cm nodule on the upper pole. Left thyroid lobe 6x4x2cm with multiple nodules, the largest one in upper pole, 2cm. Multiple adenopathies. A 3x3x1cm tumor with irregular edges, hard consistency, adhered to the hyoid bone was removed.

The histology was compatible with papillary thyroid carcinoma in the TD. Thyroid gland was informed as simple goiter.

150ug of levothyroxine was initiated. Six months later, she receives 100mCi I<sup>131</sup>. The total body scan was positive

for thyroid remnant in cervical region. TSH 0.8 FT4 1.71. Thyroglobulin (TG) 13.98 and AntiTG 400.

One year later, new total body scan was negative. TG 10,3 and antiTG 816. New thyroid US showed group III cervical adenopathy 4x7x3mm. Biopsy was compatible with metastasis of papillary thyroid carcinoma. The patient is awaiting a new surgery for lymph node dissection.

#### CONCLUSION

Sistrunk surgery and total thyroidectomy plus lymphadenectomy should be the treatment of choice in thyroid cancer in TD, followed by ablative therapy. This attitude improves long-term follow-up and reduces the risk of recurrence.

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## Adrenal

### ADRENAL CASE REPORTS I

#### *Hypoglycemia Following Unilateral Pheochromocytoma Resection in the Immediate Post-Surgical Period*

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#### SAT-202

##### Introduction

Hypoglycemia in the immediate post-resection period of unilateral pheochromocytoma is a potential complication but not very well recognized.

##### Clinical Case

A 47 year old female with past medical history of Hypertension, coronary artery disease, Myocardial infarction, Depression, Systemic lupus erythematosus presented to the hospital initially for elective robotic assisted Left adrenalectomy. CT scan showed a big left adrenal mass with normal right adrenal gland. It was clinically diagnosed as Pheochromocytoma as outpatient by primary internist. Biochemical studies showed elevated serum metanephrines and normetanephrines, and urine normetanephrine.

Post-surgery (< 24 hours) patient had episodes of fasting hypoglycemia with blood glucose levels as low as 68 mg/dl, accompanied with neuroglycopenic symptoms like tremors, sweating and palpitations.

High dose ACTH stimulation test was performed. Serum cortisol levels were tested as 5.1, 11.7 and 14.4 mcg/dl within 0, 30 minutes and 60 minutes of Cosyntropin 250 mcg IV injection.

The patient was started on Prednisone 5 mg daily to prevent any further episodes, which was successful, and was stopped by the patient one week after discharge, without any more hypoglycemia episodes. Further endocrinology work up could not be done as the patient did not follow up.

Post-surgical pathology showed a 7x 5.5 x4 cm mass, which was confirmed as pheochromocytoma histopathologically and