Tumor Biology
TUMOR BIOLOGY: GENERAL, TUMORIGENESIS, PROGRESSION, AND METASTASIS
Refractory Paraneoplastic Non Islet Cell Tumor Hypoglycemia (NICTH) from Hepatocellular Carcinoma Managed with Somatostatin Analogue and Glucocorticoids
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SAT-117
Non islet cell tumor hypoglycemia (NICTH) is a rare paraneoplastic syndrome generally seen in tumors of mesenchymal and hepatic origin. This syndrome is characterized by life threatening hypoglycemia caused by over expression of high molecular weight insulin-like growth factor 2 (IGF 2). The main stay of treatment is surgical resection of the tumor with no clear medical management being reported as standard of care.

We present the case of a 72 year old Cambodian man with no history of diabetes mellitus who presented to our institution with severe hypoglycemia complicated by a seizure and was found to have hepatocellular carcinoma (HCC). Hypoglycemia occurred during times of fasting. Laboratory evaluation revealed a serum glucose of 30mg/dl with insulin level of 2.2 mIU/mL [2.6 - 24.9 mIU/mL], C-Peptide of 0.17 ng/mL [0.80 - 3.85 ng/mL], BHB <0.1 mmol/L [0.0 - 0.3 mmol/L] and Proinsulin of <0.4 pmol/L [< or = 18.8 pmol/L]. Hypoglycemic agents screening was negative. Insulin Antibody was negative <0.4 U/mL [<0.4 U/mL] and adrenal insufficiency and hypothyroidism was ruled out. Patient was found to have an elevated IGF 2; IGF 1 ratio of 78 confirming the diagnosis of NICTH. IGF 2 level was 780 ng/ml [333 - 967 ng/ml] while IGF-1 was < 10 ng/ml [32-200 ng/ml]. He was not a candidate for surgery due to portal vein involvement and tumor radioembolization was unsuccessful. Despite Prednisone dose of 10 mg twice daily and frequent complex carbohydrate meals, he still continued to have hypoglycemia ultimately requiring hospitalization. During hospitalization, he was treated with 50% dextrose infusion, 37.5 grams of dextrose gel every three hours and frequent small meals. Hypoglycemia remained refractory and a trial of diazoxide was ineffective. He was then started on octreotide with titration to 100mcg every 8 hours with significant reduction in hypoglycemic episodes. He continues to remain on octreotide, Prednisolone 20mg twice a day, dextrose gel and dextrose infusion. Goal is to wean dextrose infusion and transition him to Pasireotide 40mg monthly.

Hepatocellular carcinoma has been associated with NICTH in the literature. NICTH is characterized by an IGF2:IGF1 ratio >10 as there is no commercially available assay for big IGF II. Definitive treatment involves surgical resection or tumor debulking. Octreotide has antiangiogenic and antineoplastic properties and unfortunately, few studies have shown improved survival and quality of life in patients with advanced HCC. In the case of our patient, tumor was unresectable and NICTH improved with octreotide and prednisolone.

Thyroid
THYROID DISORDERS CASE REPORTS II
Untreated Primary Hypothyroidism Presenting as Pica with Concurrent Hyponatremia and Rhabdomyolysis
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SAT-487
Background:
Psychosis is a rare but known presentation of hypothyroidism, whereas other mental health disorders are less commonly associated. Pica, the consumption of non-nutritive, non-food substances, has not been reported to be associated with hypothyroidism. We describe a case of untreated severe hypothyroidism in which the patient presented with pica that reversed with treatment with levothyroxine.

Clinical case:
A 65-year-old female with a history of cigarette smoking and chronic marijuana use was brought to the emergency department by family after she was found attempting to eat non-food objects such as pens and a toothbrush. She reported new onset unsteady gait and having frequent falls over the past several months in addition to being increasingly forgetful. She complained of fatigue and reported recent unintentional weight loss, but denied cold intolerance, skin or hair changes, or constipation. On admission, she was noted to be hypothermic with body temperature between 94-95 degrees Fahrenheit. Physical examination was essentially unremarkable with normal thyroid size and reflexes. No pretibial edema was noted. Admission labs showed hemoglobin of 14.0 g/dL, BUN of 9 mg/dL, creatinine of 0.9 mg/dL, sodium of 135 mEq/L, potassium of 5.0 mEq/L, chloride of 106 mEq/L, bicarbonate of 21 mEq/L, and international normalized ratio of 1.6. Serum glucose was 58 mg/dL, calcium of 9.5 mg/dL, albumin of 3.6 g/dL, iron of 50 mcg/dL, ferritin of 26 mcg/L, and RBC mass of 31.2 mg/dL. Thyroid stimulating hormone (TSH) was 14.8 mIU/mL (0.3-5.0 mIU/mL), free T4 1.90 ng/dL (0.80-1.70 ng/dL), total T4 0.7 mcg/dL (5.1-11.9 mcg/dL), total T3 < 25 ng/dL (76-181 ng/dL), and TPO antibody 416 IU/ml (<9 IU/ml). AM cortisol was 27.0 ug/dL (6.2-19.4 ug/dL) at 8 AM, ruling out hypocortisolemia. The patient had not seen a medical provider in 10 years, had no recent health maintenance, and had no prior known history of thyroid disease. She was given IV fluids and started on oral levothyroxine 100 mcg daily due to the severity of hypothyroidism. Her sodium improved to 130 mmol/l over the next 4-5 days.
Thyroid

THYROID DISORDERS CASE REPORTS II

Thyrotoxicosis Presenting as Right Sided Heart Failure: Two Case Reports, Two Differing Outcomes Illustrating the Importance of Early Aggressive Treatment to Reverse Cardiac Dysfunction

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SAT-495

Background: Graves’ thyrotoxicosis can lead to life-threatening right heart failure requiring urgent treatment. We present two such cases to illustrate management challenges and the importance of early definitive treatment.

Clinical cases: The first case is a 41 year old female with Graves’ hyperthyroidism and severe right heart failure. Cardiac ECHO showed LVEF 76% with severe biatrial enlargement, TV regurgitation, and an enlarged RV. The liver was enlarged, transaminases were high, bilirubin was 24 mg/dl (0-1.4), and clotting was prolonged. Due to hepatic dysfunction, methimazole was held. She was not a candidate for I-131 as she had received iodinated contrast. Treatment with dexamethasone and SSKI normalized thyroid function over four days. She was discharged but presented two months later with worsened hyperthyroidism and right heart failure. She was a poor surgical candidate and I-131 was administered as definitive therapy. She developed PEA arrest the following day without recovery leading to withdrawal of care and death eight days later.

The second case is also a 41 year old female with an 18 year history of Graves’ disease, intermittently compliant with methimazole. She presented with hyperthyroidism and severe right heart failure. The liver was enlarged, transaminases were high, bilirubin was 5.1 mg/dl, and clotting was prolonged. Cardiac ECHO showed LVEF 66% with severe biatrial enlargement, TV and MV regurgitation, enlarged RV, and increased RA pressure. Due to hepatic dysfunction, methimazole was held. She was not a candidate for I-131 as she had received iodinated contrast. She was prepared for thyroidectomy with aggressive heart failure treatment, dexamethasone, SSKI, and cholestramine. Thyroid function normalized over six days and she underwent total thyroidectomy eight days after admission without complications. Postoperative cardiac ECHO showed marked improvement of cardiac parameters.

Conclusion: Right heart failure is an uncommon and often overlooked complication that can arise in poorly managed or treatment-resistant Graves’ disease. It is life-threatening and requires aggressive normalization of thyroid function, treatment of heart failure, and timely definitive therapy with I-131 or thyroidectomy. Frequently complicated by liver abnormalities, the use of thionamides is questionable. Additionally, hospitalized patients have often been evaluated with iodinated contrast studies or treated with SSKI during the acute phase, which limit the use of I-131. Our cases show that dexamethasone, SSKI, and cholestramine can rapidly normalize thyroid function. The first case ended in death, probably due to delay in definitive treatment, whereas the second patient had an early thyroidectomy with good outcome. We recommend aggressive treatment to normalize thyroid function and reverse cardiac dysfunction followed by early definitive therapy.