Implicated in most of the complications associated with GH and IGF-1 levels lead to insulin resistance, which is characterized by chronic overproduction of growth hormone (GH) and insulin-like growth factor-1 (IGF-1). Excess manifestation of Acromegaly, Polyarticular Osteoarthritis: A Disabling Pathology, Their Treatments and Outcomes.

**Methods:** NHANES surveys 1999-01 and 2007-12 that measured thyroid function tests were included in the study. You aged 2-18 years with TSH levels < 10 uU/mL and normal T4 (TT4) levels were included in the analysis. The components of metabolic syndrome were defined as abdominal obesity (waist circumference > 95th %tile), hypertriglyceridemia (TG >100 for 0-9 years and >130 mg/dL for > 10 years), low HDL cholesterol < 40 mg/dL), elevated blood pressure (> 95th %tile for age/sex/height) and hyperglycemia (FBG > 100 mg/dL, or diagnosis of diabetes). The association of these components with quartiles of TSH were examined by logistic and linear regression controlling for age, sex, race/ethnicity and BMI. All analyses were performed in R v3.5.1.

**Results:** After excluding youth with TSH >10 uU/mL and TT4 levels < 12.4 mcg/dL, 2377 subjects (50% female) were included in the study. The mean age of the cohort was 15 ± 1.7 years; 28.2% were non-hispanic whites and 38.5% hispanic/latino. Obesity (BMI >95% %tile) was seen in 21.7% individuals. There were 44 subjects with TSH levels >4.5 uU/mL that was not different by BMI (2.5% in BMI >95% %tile and 1.7% BMI < 95% %tile, p = 0.29). Based on the distribution in the population, TSH levels were divided into 4 quartiles: Q1 = 0.01-0.97, Q2 = 0.98-1.42, Q3 = 1.43-2.0, Q4 = > 2.01 uU/mL. A statistically significant association of the Q4 TSH was seen with abdominal obesity, OR 2.44 (1.38-4.39), p=0.002 and elevated BP, OR 1.6 (1.06-2.44), p = 0.02 but not with high TG, OR 1.58 (0.93-2.75), p=0.09, low HDL, OR 0.84 (0.6-1.17), p = 0.31 or those with hyperglycemia and/or diabetes, OR = 1.25 (0.78-2.05), p = 0.36. Linear regression models showed statistically significant association of abdominal obesity, hypertriglyceridemia, elevated BP and hyperglycemia (and/or diabetes) with increase in TSH level.

**Conclusions:** In children from a representative US population, the prevalence of SH defined as TSH level >4.5 uU/mL is low, even with BMI >95th %tile. The association of measures of metabolic syndrome with linear increase in TSH suggests that the current reference range may require modification.

**Neuroendocrinology and Pituitary Case Reports in Secretory Pituitary Pathologies, Their Treatments and Outcomes**

**Polyarticular Osteoarthritis: A Disabling Manifestation of Acromegaly**

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**SAT-249**

Polyarticular Osteoarthritis: A Disabling Manifestation of Acromegaly

Acromegaly is a slow-onset rare endocrinopathy that is characterized by chronic overproduction of growth hormone (GH) and insulin-like growth factor-1 (IGF-1). Excess GH and IGF-1 levels lead to insulin resistance, which is implicated in most of the complications associated with acromegaly. We present a case of acromegaly, wherein the patient presented with worsening polyarthralgia and decreasing mobility. As the patient was undergoing workup for rapidly progressing osteoarthritis, the internist became suspicious of patient’s changing physical appearance.

**Case**

A 53-year-old man with medical history of diabetes mellitus and hypertension was referred to endocrine clinic on account of high IGF-1 levels, 909 ng/ml (normal: 37-245 ng/ml). He was seeking medical attention because of rapidly progressing polyarthralgia and stiffness for the last two years. His symptoms were intensifying despite use of non-steroidal anti-inflammatory drugs and intra-articular steroid injections. Imaging revealed severe degenerative changes and narrowing of joint space in bilateral hip, knee and glenohumeral joints. Internist observed that the patient was exhibiting stigmata of acromegaly such as enlargement of hands and feet, prognathism and dental space widening. Patient reported headaches, blurry vision, sleep apnea, dysphagia and right ear exostosis. Colonoscopy revealed hyperplastic polyps.

Repeat IGF-1 levels were 910 ng/ml (Normal: 37-245 ng/ml). Oral glucose tolerance test showed failure of suppression of GH. Serial GH levels were 4.50, 5.08, 6.74, 5.81 and 5.21 ng/ml (Normal: 0.01-0.97 ng/ml).

Tests for other endocrinopathies revealed the following results: serum prolactin 4 ng/ml (Normal <18 ng/ml), serum cortisol 7.9 ug/dl (Normal: 6-27 ug/dl), 24 hour urine cortisol 23mcg/24 hours (Normal: 3.5-45 mcg/24 hours), serum TSH 2.25 uU/mL (Normal: 0.34-3 uU/mL), serum T4 level 0.7 ng/dl (Normal: 0.6-1.6 ng/dl) and serum T3 level 144.9ng/dl (Normal: 87-178 ng/dl). Serum total and free testosterone levels were 111 ng/dl (Normal: 400-1000 ng/dl) and 3.89 ng/dl (Normal: 3.0-10.0 ng/dl) respectively and were suggestive of hypogonadism.

MRI Brain showed 12x10x8mm pituitary adenoma. He was referred for transphenoidal surgery for resection of pituitary adenoma.

**Conclusion**

Polyarticular osteoarthritis is an early manifestation of acromegaly. Systemic diseases associated with acromegaly are the primary reason for which most patients seek medical attention. It is important to look for coexisting endocrinopathies whenever the diagnosis of acromegaly is established, since mass effect of pituitary adenoma can wreak havoc on the endocrine system of the body. High index of suspicion, early diagnosis and prompt treatment are the key to reverse some but not all comorbid conditions associated with acromegaly.

**Adrenal**

**ADRENAI CASE REPORTS I**

**ACTH-Producing Pheochromocytoma, a Challenging Disease to Diagnose and Manage.**

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**SAT-204**

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