Gabriela Mroueh, MD, James K. Burks, MD.

SAT-509

Celiac disease (CD) is an immune-mediated enteropathy caused by a reaction to gliadin which responds to a restriction to dietary gluten. It has been traditionally recognized in children and young adults, although, recently, detection in the elderly population has increased. CD occurs in 2–5% of patients with autoimmune hypothyroidism, and is more prevalent in this group than in the general population. An 82-year-old Caucasian woman with primary hypothyroidism and a BMI of 16 is referred to our endocrinology clinic for help with the management of hypothyroidism. She had a history of well controlled hypothyroidism on weight-dosed levothyroxine for many years until several months prior when she developed sudden onset of diarrhea and weight loss. Since then, her thyroid function tests showed an elevated TSH despite medication adherence. Her levothyroxine dose was steadily increased to 300 mcg daily and yet, her TSH still remained elevated. Laboratory work up was done which revealed elevated transglutaminase antibodies, suggesting the diagnosis of CD. The patient refused an endoscopy for a tissue diagnosis. Even though the patient has been diagnosed with CD, she has trouble following a gluten free diet and still has intermittent diarrhea and high levothyroxine requirements. Although lack of medication adherence is common, it is important to exclude gastric or intestinal causes of malabsorption in patients with high thyroid replacement requirements. Elderly patients often have paucity of symptoms, so high clinical suspicion is necessary to diagnose these patients.

Neuroendocrinology and Pituitary

ADVANCES IN NEUROENDOCRINOLOGY

Role of Aktin, Follistatin, and Inhibin in the Regulation of KISS-1 Gene Expression in Hypothalamic Cell Models

Aki Oriide, MD, Haruhiko Kanasaki, MD, PhD, Zolzaya Tumurbaatar, MD, Tuvshintugs Tumurbaatar, MD, Satoru Kyo, MD, PhD.

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Kisspeptin (encoded by the Kiss-1 gene) in the arcuate nucleus (ARC) of the hypothalamus governs the hypothalamic-pituitary-gonadal (HPG) axis by regulating pulsatile release of gonadotropin-releasing hormone (GnRH). Meanwhile, kisspeptin in the anteroventral...
periventricular nucleus (AVPV) region has been implicated in estradiol (E2)-induced GnRH surges. Kiss-1-expressing cell model mHypoA-55 exhibits characteristics of Kiss-1 neurons in the ARC region. On the other hand, Kiss-1 expressing mHypoA-50 cells originate from the AVPV region. In the mHypoA-55 ARC cells, activin significantly increased Kiss-1 gene expression. Follistatin alone reduced Kiss-1 expression within these cells. Interestingly, activin-induced Kiss-1 gene expression was completely abolished by follistatin. Inhibin A, but not inhibin B reduced Kiss-1 expression. Activin-increased Kiss-1 expression was also abolished by inhibin A. Pretreatment of the cells with follistatin or inhibin A significantly inhibited kisspeptin- or GnRH-induced Kiss-1 gene expression in mHypoA-55 cells. In contrast, in the mHypoA-50 AVPV cell model, activin, follistatin, and inhibin A did not modulate Kiss-1 gene expression. The subunits that compose activin and inhibin, as well as follistatin were expressed in both mHypoA-55 and mHypoA-50 cells. Expression of inhibin βA and βB subunits and follistatin was much higher in mHypoA-55 ARC cells. Furthermore, we found that expression of the inhibin osubunit and follistatin genes was modulated in the presence of E2 in mHypoA-55 ARC cells. The results of this study suggest that activin, follistatin, and inhibin A within the ARC region participate in the regulation of the HPG axis under the influence of E2.

Bone and Mineral Metabolism
BONE AND MINERAL CASE REPORTS II

Severe Postoperative Encephalopathy in a Patient with Oncogenic Osteomalacia and Neurofibromatosis Type 1

Sauradeep Sarkar, MD1, Amteshwar Singh, MD2,
Esther Irina Krug, MD1.
1Sinai Hospital of Baltimore, Baltimore, MD, USA, 2Johns Hopkins School of Medicine, Baltimore, MD, USA.

MON-364

Background: Acute hypophosphatemia superimposed on chronic phosphate depletion results in decline in intracellular ATP and 2,3-diphosphoglycerate levels, affecting virtually all organ systems. It can lead to metabolic encephalopathy, impaired myocardial and diaphragmatic contractility, skeletal and smooth muscle dysfunction, increase in erythrocyte rigidity leading to hemolysis, and increased risk for postoperative morbidity and mortality. Risk of symptomatic hypophosphatemia may be greater in patients with urinary phosphate wasting syndromes hospitalized for intercurrent illness. Tumor-induced (oncogenic) osteomalacia (TIO) is a rare paraneoplastic disorder associated with mesenchymal tumors caused by tumor production of fibroblast-derived growth factor-23 (FGF-23). FGF-23 impairs transport of phosphorus in renal tubules, inhibits renal 25(OH)-1-α-hydroxylase activity, causing decreased levels of calcitriol, leading to hyperphosphaturia, hypophosphatemia and osteomalacia. We present a case of a patient with underlying TIO who presented with acute hypophosphatemia following hip surgery.

Case: 50-year-old woman with Neurofibromatosis type-1(NF-1) complicated by TIO, presented after a fall resulting in left femur fracture requiring surgery. During her initial management in an outside hospital for 4 days and following transfer her home calcitriol and phosphorus replacement regimen was not administered leading to treatment interruption of 7 days. On postoperative day 1 she became hypotensive, tachycardic with non-specific ST-T changes and encephalopathic requiring ICU care. At the time of endocrinology consultation, she was non-verbal, not following simple commands, had severe hypophosphatemia, transaminitis, hyperbilirubinemia, elevated LDH, anemia and elevated troponin. She required aggressive phosphate and calcitriol replacement reaching 4 doses of 20mEq IV Na- Phos daily, Na-KPhos Q6H and Calcitriol IV 0.5mcg Q8H over the course of 72 hours. After 4 days in the ICU, once phosphorous levels normalized, she had dramatic improvement in mental status and gradual resolution of laboratory abnormalities.

Discussion: To our knowledge, this is the first report of a patient with TIO associated with NF-1 presenting with severe symptomatic hypophosphatemia causing metabolic encephalopathy and multiple organ dysfunction following surgery. It underscores the fact that abrupt interruption of calcitriol and phosphorus supplementation in such cases can cause acute hypophosphatemia carrying high morbidity. High phosphate replacement requirements are indicative of severity of phosphate depletion. This case illustrates importance of recognition of presence of urinary phosphate wasting syndrome in hospitalized patients in order to minimize risk of preventable complications and morbidity.