depressive like behavior in VCD-periestropausal rats associated with low progesterone plasma levels. Although progesterone levels are improved by E2T, depressive like behavior is intensified possibly due to a reduction in NA transmission in the hippocampus.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORTS I

Humerus Fracture & Dislocation of Right Shoulder Following a Seizure in Non-Epileptic Patient Due to Hypoparathyroidism

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Humerus fracture & Dislocation of right shoulder following a seizure in non-epileptic patient due to hypoparathyroidism

Introduction: Hypoparathyroidism is a rare disease. The most common etiology of hypoparathyroidism is the surgical resection of the parathyroids. Primary hypoparathyroidism can cause a wide spectrum of manifestations, mainly due to low serum calcium effect on internal organs, and directly correlates with the rate of development of hypocalcemia. Parathyroid Hormone (PTH) is one of the key regulators of the rate of bone remodeling. A reduction or absence of circulating PTH leads initially to a decrease in bone resorption then to a coupled reduction in bone formation.

Case Presentation: A 36-year-old male nurse in primary health care, not known to have any medical illness, presented to the emergency department with generalized tonic-clonic seizures associated with right shoulder dislocation and communicated fracture of the humerus. However, the day before his presentation, he has had two episodes of convulsion, but he did not seek medical attention. He had developmental delay in walking and teeth eruption as well as frequent generalized tonic-clonic which were treated by traditional healer. This information could point out to the possibility of congenital origin. Upon arrival to the emergency department, he has teeth decay all over his oral cavity with right shoulder dislocation and right humerus fracture. Chvoostek sign and trosseau sign were positive. The patient was treated initially with calcium gluconate intravenously followed by oral treatment of calcium carbonate 1.2 g three times daily and alfacalcidol 1 mcg twice daily and upon discharge teriparatide 20 mcg subcutaneously daily was given.

Conclusion

Treatment of hypoparathyroidism with recombinant parathyroid hormone may reduce bone mineral density (BMD) but concomitantly strengthen bone. This is a treatable disorder that may have catastrophic results if overlooked but also its symptoms may be completely reversed with prompt treatment. It is of utmost importance routine vitamin D, phosphorous, and calcium monitoring, as well as renal calcium excretion evaluation to prevent complications of overtreatment with CA and active Vit D.

References

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Neuroendocrinology and Pituitary

ADVANCES IN NEUROENDOCRINOLOGY

Transcriptome of the Amygdala in Normal Cyclic and Acyclic Gilts

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SUN-242

Many replacement gilts fail to express estrus, which results from being nonpubertal or behavioral anestrus. Genomic studies identified neuronal and olfaction pathways associated with these reproductive phenotypes. To better understand puberty failure, the transcriptome of the amygdala in nonpubertal, behavioral anestrus and normal cycler gilts in the early follicular and midluteal phase was evaluated (n = 8/group; mean age = 259 d). An average of 57 million reads were obtained from each of 32 TruSeq mRNA libraries and mapped to SuscROFA 11.1. Differential expression of genes (DEG; adjusted P < 0.05) was determined using DESeq2 and pathway analysis performed with iPathwayGuide. A total of 17,173 annotated genes were expressed (raw read count > 15 in ≥ 8 samples). Comparing amygdala expression in nonpubertal gilts with follicular phase control gilts revealed 6 DEG (3 unannotated) including ARRDC2, ZFAND2A, and LAMC2. The only DEG identified between behavioral anestrus gilts and luteal control phase gilts was PIK3CG. There were 88 DEG in the amygdala of follicular phase gilts compared with luteal phase gilts. Expression of 75 genes was upregulated in the amygdala of follicular phase gilts and 14 genes were more highly expressed in luteal phase gilts. Enriched pathways included TGFB signaling and ion transport related to GABAAergic and glutamatergic neuronal function. Molecular processes for chemokine binding, membrane transporters and receptor signaling through phosphatidylinositol and tyrosine kinases were upregulated in the amygdala of follicular phase gilts. Prominent cellular components included ion channels and integrins necessary for focal adhesions that promote dendritic growth and neuronal synapse. Major differences in the amygdala of prepubertal and behavioral anestrus gilts were not found, with few genes differentially expressed compared to cyclic gilts. Stage of the ovarian cycle majorly impacted gene expression related to increased neuronal activity in the amygdala of follicular phase gilts. USDA is an equal opportunity provider and employer.

Thyroid

BENIGN THYROID DISEASE AND HEALTH DISPARITIES IN THYROID I

Long Term Evaluation of TSH Receptor Antibodies and Thyroid Stimulating Immunoglobulin After Radioiodine Therapy for Thyrotoxicosis.

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Bone and Mineral Metabolism

CLINICAL ASPECTS OF OSTEOPOROSIS AND VITAMIN D ACTION

Total and Free 1,25-dihydroxyvitamin D Levels in Postmenopausal Patients with Primary Hyperparathyroidism

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Total and free 1,25-dihydroxyvitamin D levels in postmenopausal patients with primary hyperparathyroidism:

Background: Vitamin D3 is metabolized to 25-hydroxyvitamin D [25(OH)D] in liver, and only after it goes to kidney is it converted to its biologically active form, 1,25-dihydroxyvitamin D [1,25(OH)2 D]. Also, the majority of both total 25(OH)D and 1,25(OH)2 D are tightly bound to vitamin D binding protein (DBP) and only a small portion remains in free form. In certain patient populations, like primary hyperparathyroidism (PHPT), concentrations of free vitamin D metabolites may be affected by altered levels of binding protein.

Objective: To evaluate total and free 1,25(OH)2 D levels in PHPT patients and healthy controls.

Methods: Thirty female patients with PHPT and 30 healthy age and body mass index (BMI) matched controls were enrolled (57.1 ± 9.8 years and BMI of 32.2 ± 7.2 kg/m2). Serum levels of calcium, intact parathyroid hormone (iPTH), DBP, total 25(OH)D and 1,25(OH)2 D levels were examined. Serum free 25(OH)D and 1,25(OH)2 D levels were calculated using equations adapted from Bikle et al.

Results: There were no significant differences in age and BMI between groups. Compared to controls, patients with PHPT had lower total 25(OH)D (25.2 ± 7.5 vs. 19.3 ± 6.4 ng/mL; p < 0.001) and DBP levels (40.7 ± 3.1 vs. 36.5 ± 5.7 mg/dL; p < 0.001). There were no significant differences in total 1,25(OH)2 D levels or calculated free 25(OH)D levels between PHPT patients and controls; but the calculated free 1,25(OH)2 D levels were 27% higher in the PHPT patients compared to controls (p < 0.001). The calculated free (but not total) 1,25(OH)2 D level was inversely correlated with DBP (r = -0.35, p < 0.01) and positively correlated with iPTH levels (r = 0.33, p < 0.01).

Conclusion: Postmenopausal patients with PHPT had lower serum total 25(OH)D, but similar free 25(OH)D levels. In contrast, total 1,25(OH)2 D levels did not differ between patients and controls; however, patients had higher free 1,25(OH)2 D. Because total 25(OH)D and 1,25(OH)2 D levels do not reflect free levels, standard clinical measures of circulating vitamin D may not be an accurate estimate of true vitamin D status in patients with PHPT.

References: Bikle et al. Serum Protein Binding of 1,25-Dihydroxyvitamin D: A Reevaluation by Direct Measurement of Free Metabolite Levels. JCEM 1985;61:969-75.