plasma normetanephrine of 2.8 nmol/L (normal <0.9), metanephrine of 0.9 nmol/L (normal <0.5), 24 hour urine metanephrine 498 mcg/24 hr (normal <180) and 24 hour urine normetanephrine of 1,152 mcg/24 hr (normal <451). Findings were consistent with adrenal pheochromocytoma. She was immediately started on phenoxybenzamine and encouraged to increase fluid intake to expand intravascular volume before surgery. She underwent laparoscopic left partial adrenalectomy fourteen days later. Surgical pathology revealed a 3.0 cm pheochromocytoma in a background of nodular hyperplasia of the medulla, described as an aggressive tumor phenotype based on morphological features.

Conclusions

It has been estimated that 1.5–14% of adrenal incidentalomas are pheochromocytomas. While only 3% of NF-1 patients have pheochromocytomas, 20–50% of NF-1 patients with concurrent hypertension have underlying chromaffin tumors. This association is significant when compared to the pheochromocytoma incidence of 0.1% in all hypertensive individuals. Interestingly, germline mutations of BRCA-1 associated protein-1 gene have been reported in patients with paragangliomas, therefore it may be plausible to consider interactions between NF-1 and breast cancer BRCA-2 gene mutations, resulting in an unusual and more aggressive pheochromocytoma phenotype, even when detected at an early stage, as in this case. It is also important to recognize and adequately treat pheochromocytoma prior to having surgery to avoid possible intraoperative hypertensive crisis, a concept that was underscored in this particular case when the patient was relatively asymptomatic and entirely normotensive preoperatively.

Bone and Mineral Metabolism

PARATHYROID HORMONE TRANSLATIONAL AND CLINICAL ASPECTS

Testing for Parathyroid Hormone: Performances of a Novel Fully Chemiluminescent Automated Assay.

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SAT-387

Background: Parathyroid hormone (PTH) is one of the key regulators of the bone and mineral metabolism. Testing for PTH is essential for the management of hyper- or hypo calcemia. Measurement of PTH is also an important tool for the monitoring of patient with chronic kidney diseases. Our study objective was to determine the performances of a novel fully automated chemiluminescent assay for testing of intact PTH. **Methods:** We evaluated the Maglumi® (Snibe) PTH assay a fully automated two-sites immunoluminometric method based on a solid-phase, paramagnetic microbeads, coated with a monoclonal antibody targeting PTH epitopes. Assay imprecision was assessed with two levels of control materials. Reference values were determined with samples of 24 healthy volunteers. Method comparison was performed with an electrochemiluminescent immunoassay (ECLIA) (Roche diagnostics) with 24 patients' samples. **Results:** The between-run coefficients of variation of the Maglumi® PTH assay were 5.1 and 3.7 % for concentrations of 33 and 992 pg/mL, respectively. The median PTH levels were 121 pg/mL (range: 18 - 369) with the Maglumi assay and 117 pg/mL with the ECLIA method (range: 10 - 482). The upper limit of the reference interval in the healthy volunteers was 63 pg/mL. The correlation between the both methods was good (r=0.87, p<0,001). Passing-Bablok regression analysis showed a slope of 0.96 (95% confidence interval (CI): 0.83 to 1.35) and an intercept of -2.14 (95% CI: -20.49 to -10.47). Bland-Altman plot evidenced a bias between the methods with a mean bias of 4.6 pg/mL. **Conclusions:** Our preliminary data showed excellent concordance and analytical performances for the PTH fully automated immunoassay associated to perspectives of automation and reduction of turn-around time of analysis.

Pediatric Endocrinology

PEDIATRIC SEXUAL DIFFERENTIATION, PUBERTY, AND BONE BIOLOGY

Gonadotropins Levels Measurement in First Morning Voided Urine as a Diagnostic Tool for Central Precocious Puberty

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SUN-097

Background: GnRH stimulation test is the gold standard for the diagnosis of central precocious puberty (CPP). However, it is invasive and costly. Previous studies showed that increased urinary gonadotropins (Gn) level in first morning voided (FMV) urine reflected the integration of elevated nocturnal Gn secretions. Therefore, it could be used to diagnose CPP. Nevertheless, its cutoff value for diagnosis of CPP is limited. **Objective:** To determine the association of Gn levels in FMV urine and serum during pubertal development and establish cutoff value of FMV urinary Gn as an alternative noninvasive method for diagnosis of CPP in girls**. Methods:** Sixty-one girls who had breast development before 8 years of age with sign of rapid pubertal progression (advanced bone age and/or increased height velocity) underwent subcutaneous GnRH agonist test. FMV urinary Gn were also collected on the same day. Both serum and urinary Gn levels were measured using electrochemiluminescence immunoassay (ECLIA) technique. The definite diagnosis of CPP is based on stimulated serum LH > 5 IU/L. FMV urinary Gn were compared between CPP and premature thelarche (PT) groups. The correlation between serum and urinary Gn were assessed and the cutoff value of urinary Gn to diagnose CPP was established. FMV urinary Gn of 480 Thai school girls (control) were also collected to determine the reference values according to their breast Tanner (BT) stages. **Results**: FMV ULH level in girls with CPP was significantly higher than that of PT (2.46 VS 0.8 IU/L; median, P <0.001). However, the level of ULH in PT group was not different from control group with BT1. FMV ULH and ULH: UFSH were well correlated with basal serum LH (r=0.63 and 0.73, respectively, Ps<0.001) and peak serum LH (r=0.44 and 0.54, respectively, Ps<0.001). Base on receiver operating

characteristics analysis, basal serum LH was the best parameter to differentiate CPP from PT (area under the curve 0.797–0.926). ULH levels at ≥ 1.13 IU/L and ≥ 1.52 provide optimal sensitivity (72.3 and 68.1 %, respectively) and specificity (85.7 and 100 %, respectively). Combined ULH level ≥ 1.13 IU/L with ULH: UFSH ≥ 0.17 increased specificity from 85.7 to 92.9 % for predicting a positive GnRH agonist test. (peak LH ≥ 5 IU/L) **Conclusions:** First morning voided urinary Gn levels measurement is a highly potential method for the diagnosis of CPP in girls due to its good correlation with GnRH agonist test. Further study in a larger number of patients with close monitoring of clinical outcome is required before recommending as a standard investigation in CPP.

Adrenal

ADRENAL MEDICINE — CLINICAL APPLICATIONS AND NEW THERAPIES

The Effects of Crinecerfont (NBI-74788), a Novel CRF1 Receptor Antagonist, on Adrenal Androgens and Precursors in Patients with Classic Congenital Adrenal Hyperplasia: Results from A Multiple-Dose Phase 2 Study

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OR25-03

Introduction: Classic congenital adrenal hyperplasia due to 21-hydroxylase deficiency (21OHD CAH) is a rare autosomal recessive disease that results in impaired cortisol synthesis and excess androgen production. Compounds that inhibit adrenocorticotropic hormone (ACTH) release could reduce adrenal androgen production and thus the amounts of exogenous glucocorticoids needed to decrease these androgen levels. This study evaluated the effect of crinecerfont (NBI-74788), a novel, non-steroidal, and selective corticotropin-releasing factor-1 (CRF1) receptor antagonist on adrenal androgens and precursors in adults with 21OHD CAH.

Methods: This open-label, multiple-dose study enrolled men and women (18–50 years old) with 21OHD CAH. A sequential-cohort design evaluated 4 crinecerfont oral dosing regimens: 50 mg QHS (Cohort 1); 100 mg QHS (Cohort 2); 100 mg QD (Cohort 3); and 100 mg alternative dosing (Cohort 4). Each regimen was administered for 14 consecutive days. ACTH, 17-hydroxy-progesterone (17OHP), and androstenedione (A4) were measured serially over a 24-hour period, at baseline and after 14 days of dosing.

Results: Analyses included 23 participants: Cohort 1 (4 women, 4 men: mean age 31.1 years); Cohort 2 (5 women, 2 men: mean age 32.9 years); and Cohort 3 (3 women, 5 men: mean age 30.9 years). Cohort 4 is ongoing. At baseline, median plasma ACTH, serum 17OHP, and serum A4 levels were as follows: Cohort 1 (ACTH, 151 pg/mL; 17OHP, 5352 ng/dL; A4, 270 ng/dL); Cohort 2 (ACTH, 232 pg/mL; 17OHP, 12821 ng/dL; A4, 597 ng/dL); and Cohort 3 (ACTH, 470 pg/mL; 17OHP, 6451 ng/dL; A4, 299 ng/dL). After 14 days of once-daily crinecerfont 50 mg, Cohort 1 patients had median percent reductions from baseline in plasma ACTH (-54%), serum 17OHP (-60%), and serum A4 (-21%). Median percent reductions were generally larger with 100 mg in Cohort 2 (ACTH, -67%; 17OHP, -75%; A4, -47%) and Cohort 3 (ACTH, -69%; 17OHP, -55%; A4, -43%), consistent with a dose-related response. Adverse events were mostly mild; no clinically significant findings from routine laboratory tests, vital signs, or electrocardiograms were noted.

Conclusions: Results of this Phase 2 study of crinecerfont, a novel, orally administered, selective CRF1-receptor antagonist, indicated clinically meaningful reductions of elevated ACTH, 17OHP, and A4 in adults with 21OHD CAH after 14 days of treatment. Further studies are warranted to evaluate the effects of chronic crinecerfont therapy on maintenance of adrenal steroid production, clinical endpoints of disordered steroidogenesis, and reductions in GC exposure in both adult and pediatric patients with 21OHD CAH.

Thyroid

THYROID CANCER CASE REPORTS II

Reactive Thyroid C-Cell Hyperplasia or Medullary Thyroid Cancer in a Patient with Nodular Thyroidopathy. May the Calcitonin Measurement in Fine-Needle Aspirate Washout Fluid of the Healthy Lobe Help to Define These Conditions?

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MON-457

Background: Serum basal calcitonin (bCT) is used as a biomarker of medullary thyroid carcinoma (MTC) but bCT can also be elevated in patients with hypercalcemias, hypergastrinemias, thyroiditis, neuroendocrine tumors, renal end-stage kidney disease, obesity and cigarette smoking. The application of bCT and calcitonin measured in the FNA washout fluid sample (FNA-CT) for screening certain patients with nodular thyroidopathy can be controversial. *Case:* A 44 yo patient presented with elevated bCT level - 24pg/ml (N for male <18). He had a morbid obesity (BMI-45kg/m2) and thereby received GLP-1 receptor agonists Liraglutide 18 mg in total throughout one month. The ultrasound thyroid examination showed 2 nodules in the right lobe: 11mm and 9 mm (EU-TIRADS 2 and 4). Thyroid nodules were evaluated by fine needle aspiration biopsy (FNAB) which revealed benign colloid nodules (Bethesda II). Following the most updated ATA guidelines, to accurately diagnose MTC we performed FNA-CT measurement. The concentration from both nodules exceeded the upper reporting range of 2000 pg/ml. The patient