SAT-030
The Aging Males’ Symptoms (AMS) scale is used to assess health-related quality of life (HRQOL) and erectile dysfunction (ED) in hypogonadal men. However, this questionnaire hasn’t been validated specifically for use in hypogonadal men with T2D. BDHQ was developed using data collected in the Barnsley Type 2 Diabetes Cohort Longitudinal Study based on AMS, the International Index of Erectile Function Questionnaire, and The Short Form (36) Health Questionnaire. Statistical analysis identified the 19 most sensitive and specific questions for identifying men with hypogonadism in a T2D population. Objectives: To assess the significance of AMS and BDHQ in hypogonadal men with T2D.

Methods: The research data from a study involving men with T2D was used. All men were divided into 2 groups according to their baseline total testosterone (TT) status: group 1 (n = 82) - men with low TT (<10.4nmol/l; 300ng/dl), and group 2 (n = 64) - men with normal TT (≥10.4nmol/l; 300ng/dl). Data was also assessed using calculated freeT and bioavailableT. The statistical analysis was carried out using SPSS software and the data analysed using General Linear Model Univariate analysis of variance and Receiver Operating Characteristic (ROC) curve.

Results: Mean age for group 1 was 59.4 ± 10.1 years (range 25 - 77) and for group 2 was 61.5 ± 9.8 years (range 30 - 80). Mean TT for group 1 was 7.9 ± 1.8 nmol/l (range 1.3 - 10.3); for group 2TT was 14.9 ± 4.1 nmol/l (range 10.4 - 29.5). There was statistically significant difference in the scores in both questionnaires between the groups (AMS, p=0.012; BDHQ, p=0.035). Area under the curve (AUC) by ROC analysis showed no significant difference in sensitivity and specificity between the two questionnaires (AMS, AUC=0.623; BDHQ, AUC=0.606). To achieve sensitivity of 80%, it showed that the cut-off for positive test should be 40 out of 85 for AMS, and 44 out of 95 for BDHQ.

Conclusion: The BDHQ can be used to support a diagnosis of hypogonadism in the presence of persistent testosterone deficiency when TT is <10.4nmol/l. Whilst AMS is well-recognised tool for assessing HRQOL and ED in hypogonadal men in general population, the cut-off for positive test should be lower in diabetic population. In addition, this study showed that BDHQ is not inferior test to AMS in assessing HRQOL and ED in hypogonadal men with T2D.

Bone and Mineral Metabolism
BONE DISEASE FROM BENCH TO BEDSIDE
The Effects of Acute Hyponatremia on Bone Remodeling Markers in Patients with Subarachnoid Hemorrhage
Aoife Garrahy, MB Bch BAO MRCPI1, Jona Galloway, MBChB1, Anne Marie Hannon, MB1, Rose Dineen, MB1, KJ Gan, MB2, Moshen Javadpour, MB1, William T Tormey, MB12, Patrick J. Tseomy, MB1, Malachi J McKenna, MB1, Mark Kilbane, PhD1, Mark Sherlock, MD PhD1, Rachel K. Crowley, MD1, Chris J. Thompson, MD1
1Beaumont Hospital and RCSI, Dublin, Ireland, 2St Vincent’s University Hospital, Dublin, Ireland.

SUN-352
Animal data and cross-sectional human studies have established that chronic hyponatremia predisposes to osteoporosis; the effects of acute hyponatremia on bone remodeling are unknown. Serum markers of bone remodeling (total procollagen type 1 amino-terminal propeptide (P1NP), bone specific alkaline phosphatase (bone ALP), N-mid-ostecalcin (OCI) and C-terminal telopeptides of type I collagen (CTX-1)) were assessed in a cohort of patients admitted with subarachnoid hemorrhage (SAH), who were prospectively studied over seven days. The ratio of P1NP:CTX-1 was calculated to report a bone formation index.

Twenty-two patients (13 women), median (IQR) age 53 (47, 62) years were recruited. Patients who developed post-SAH ACTH deficiency and those treated with glucocorticoids, or continuous enteral feeding were excluded. All patients were eunatremic on initial assessment. Eight patients developed acute hyponatremia, median nadir plasma sodium concentration (pNa) 131 (128, 132) mmol/L, and 14 remained eunatremic, nadir pNa 136 (133, 137) mmol/L. The groups were matched for age, 25-hydroxy Vitamin D, PTH, WFSS and Fischer scores. Serum cortisol concentration was greater in the hyponatremic group, 571 (504, 671) nmol/L, than the eunatremic group, 449 (400, 501) nmol/L, p=0.008. Bone remodeling markers and bone formation index (P1NP:CTX-1 ratio) were similar in the two groups at baseline.

There was a significant rise in CTX-1 in both hyponatremic patients, +0.15 (0.09, 0.37) μg/l, p = 0.009, and patients who remained eunatremic, +0.11 (-0.02, 0.23) μg/l, p = 0.04, with no significant difference between the groups. There was, however, a significant fall in P1NP:CTX-1 ratio in patients with acute hyponatremia, p = 0.02, but no significant change in eunatremic patients, with significant between group difference, p = 0.02.

Changes in P1NP and OCI correlated positively with nadir pNa; r = 0.43, p = 0.04 and r = 0.61, p = 0.001 respectively. In addition, there was a positive correlation between change in P1NP:CTX-1 ratio and nadir pNa, r = 0.43, p = 0.04. There was no correlation between change in OCI or CTX-1 and nadir pNa. Serum cortisol was strongly negatively correlated with change in P1NP (r = -0.64, p = 0.001) but not with change in other bone remodeling markers.

Acute hyponatremia following SAH is associated with a fall in bone formation index; physiological hypocortisolemia may contribute to this. Further analysis with larger numbers will help us determine whether hyponatremia is an independent risk factor.

Neuroendocrinology and Pituitary
CASE REPORTS IN SECRETORY PITUITARY PATHOLOGIES, THEIR TREATMENTS AND OUTCOMES
Desmopressin Stimulation Test in a Pregnant Patient with Cushing’s Syndrome
Wasita Warachit, MD1, Thachanon Porntharukcharoen, MD2, Sarat Sunthornyothin, MD1
1King Chulalongkorn Memorial Hospital, Bangkok, Thailand, 2Chulabhorn Hospital, HRH Princess Chulabhorn College of Medical Science, Chulabhorn Royal Academy, Bangkok, Thailand.

SAT-254
Background: Cushing’s syndrome (CS) in pregnancy is a rare condition. Accurate diagnosis and appropriate treatment
are necessary due to increased morbidity and mortality in the fetus and mother with active CS. However, hormonal changes during pregnancy and limitations in terms of teratogenicity complicates the diagnosis of CS. Clinical case: A 27-year-old female presented at gestational age (GA) of 8 weeks with a 2-month history of proximal muscle weakness. She had 20-kg weight gain in 2 years before hypertension, prediabetes and pulmonary tuberculosis developed at the age of 25. On physical examination, her blood pressure was 160/100 mmHg. She had moon face, buffalo hump, wide purplish striae and hirsutism without signs of virilization. At GA 9 weeks, her morning cortisol was 32 μg/dL (883 nmol/L). Her salivary cortisol was 0.7 μg/dL (19 nmol/L) and a mean 24-hour urinary free cortisol was 237 μg/dL (654 nmol/d), which were above reference ranges. Adrenocorticotropic hormone (ACTH) was 48 pg/mL (11 pmol/L) and 40 pg/mL (9 pmol/L). Dehydroepiandrosterone sulphate was 378 μg/dL (10 nmol/d). A non-gadolinium enhanced magnetic resonance imaging (MRI) at GA 12 weeks did not reveal a pituitary mass. Desmopressin stimulation test was carried out at GA 14 weeks. Her baseline cortisol was 31 μg/dL (855 nmol/L) and ACTH was 35 pg/mL (8 pmol/L). Her ACTH increased 70% at 15 minutes after desmopressin stimulation, with an absolute difference between basal and peak ACTH of 24 pg/mL (5 pmol/L). MRI pituitary gland with gadolinium at GA 14 weeks revealed an 8-mm adenoma at right inferolateral aspect of pituitary gland. Transsphenoidal surgery with selective adenomectomy was done at GA 18 weeks without immediate complications. Pathological findings showed a segment of pituitary adenoma with ACTH positive cells. After surgery, her morning cortisol was 6 μg/dL (166 nmol/L). Hydrocortisone supplement was given and had been continued throughout pregnancy. She successfully gave birth to a term 2300-grain male infant. One year after delivery, she had spontaneous pregnancy and also delivered a term 3300-grain male infant. Cushing’s syndrome had been in remission for 2 years of follow-up. Conclusion: Hormonal changes during pregnancy lead to an increased in ACTH after 7 weeks of gestation. Desmopressin test can be a safe and reliable test to differentiate between ACTH-dependent and ACTH-independent CS. Because a non-gadolinium enhanced MRI may not always detect pituitary microadenoma, this raises the necessity of the use of MRI with gadolinium as an initial imaging in pregnant patients with ACTH-dependent CS. References: Brue T, Amodru V, Castinetti F. Management of gestational Cushing’s Syndrome due to ischemic or hemorrhagic necrosis of the pituitary gland which complicates 2-12% of pituitary tumors, especially nonfunctioning adenomas. The prevalence is about 6.2 cases per 100,000 individuals, and its incidence is estimated to be 0.17 episodes per 100,000 per year. Its clinical presentation can be acute or slowly progressive phenotypes (1). Very rarely, as the disease progresses, changes in secretory patterns may be observed.

Clinical Case: A 39-year-old female presented to the hospital with a 1-month history of abdominal pain associated with hirsutism, weight gain, acne, and amenorrhea. Computed tomography of the abdomen showed a 7 cm left adrenal mass with areas of necrosis as well as presumptive metastatic disease involving the liver and lungs. Biopsy of the adrenal mass confirmed the diagnosis of adrenocortical carcinoma. Initial laboratories were compatible with hyperandrogenemia (increased 24-hour urine 17-ketosteroid level of 106.3 mg/24 hr (n 6.0-15.0) and mildly elevated testosterone of 65 ng/dL (n<45)). Aldosterone, renin, and metanephrines levels were normal. The patient underwent adrenalecctomy after 1 month and was placed on hydrocortisone replacement. Follow-up biochemical testing showed a decrease in 17-ketosteroids level to 24.7 mg/24hr. DHEAS and testosterone were persistently elevated. Following discontinuation of hydrocortisone, her 24-hour urine cortisol was normal at 18 ug/24hr; (n 6-24) and ACTH was suppressed at 1.8 pg/mL (n 7-63). She was started on mitotane therapy shortly after. Three months after initiation of treatment, she was admitted for a pulmonary embolism. At that time, she had clear signs of hypercortisolism, such as weight gain, hyperglycemia, easy bruising as well as purple striae. Progressive metastatic disease with enlarged lungs and liver masses was observed in imaging. On this occasion, her morning cortisol was elevated at 35 ug/dL and ACTH was suppressed at 1 pg/mL. Th hyperandrogenemia was more evident this time with DHEAS of 778 ug/dL. Steroid supplementation was discontinued, and ketoconazole was started. An elevated 24-hour urinary cortisol (2085 ug/24hr) confirmed the diagnosis of Cushing Syndrome. Given the progression of disease while on mitotane, the patient was started on chemotherapy with etoposide, doxorubicin, and cisplatin.

Conclusion: This case represents an unusual example of the phenotypic transformation of adrenal cancer resulting in new-onset ACTH-independent Cushing’s syndrome while the patient was on treatment. Awareness of such changes in secretory pattern are important to guide therapy and minimize morbidity associated with hypercortisolism. Reference: (1) Puglisi S, Perotti P, Pia A, Reimondo G, Terzolo M. Adrenocortical Carcinoma with Hypercortisolism. Endocrinol Metab Clin North Am. 2018 Jun;47(2):395-407.

Pediatric Endocrinology

PEDIATRIC ENDOCRINE CASE REPORTS I

A Rare Case of Pituitary Apoplexy in an Adolescent Male

Andreea Marinescu, MD, Anita Azam, MD.
St. Christopher Hospital for Children, Philadelphia, PA, USA.

SAT-064

Introduction: Pituitary apoplexy is a rare clinical syndrome due to ischemic or hemorrhagic necrosis of the pituitary gland which complicates 2-12% of pituitary tumors, especially nonfunctioning adenomas. The prevalence is about 6.2 cases per 100,000 individuals, and its incidence is estimated to be 0.17 episodes per 100,000 per year. Its clinical presentation can be acute or slowly progressive...