months history of progressive decreased vision and decreased libido. He denied headache, seizure, erectile dysfunction, or weakness. On physical examination, his visual acuity was significantly reduced on the right eye and was only able to perceive light. He had a visual field narrowing on the left eye. Gynecomastia was noted bilaterally and testicles were found to be enlarged (Orchidometer >25 mL). Complete blood count was significant for hemoglobin of 19.2 g/dL (N, 13.7-17.5 g/dL), and hematocrit of 57.0% (N, 40.1-51.0%). Pituitary function tests were as follow: FSH >200.0 mIU/mL (N, 1.5-12.4 mIU/mL), LH 17.0 mIU/mL (N, 1.7-8.6 mIU/mL), total testosterone 41.3 nmol/L (N, 8.6-29.0 nmol/L), free testosterone 1.263 nmol/L (N, 0.148-0.718 nmol/L), and bioavailable testosterone 29.609 (N, 2.110-8.920 nmol/L). Prolactin, TSH, GH, and ACTH were all within the normal range. Magnetic resonance imaging (MRI) showed a sellar mass involving the planum sphenoidal measuring 5.8 x 5.2 x 5.6 cm with optic chiasm displaced superiorly, in addition, subfalcine herniation with mild hydrocephalus was also noted. The patient underwent orbitozygomatic approach resection of the pituitary tumor. Histological examination was consistent with a pituitary adenoma. Cells stained positive for transcription factor steroidogenic factor 1 (SF 1), FSH, LH, and alpha-subunit consistent with a gonadotroph adenoma. They were negative for transcription factor Pit 1 stain and the remaining pituitary hormones including ACTH, GH, prolactin, and TSH stain. Postsurgical hormone assessment showed a significant decline in FSH and LH to 2.3 and 0.4 mIU/mL, respectively and testosterone level decreased to < 0.087 nmol/L on postoperative day 18. The patient's vision improved postoperatively prior to discharge but he lost follow up thereafter.

Conclusion: Most patients with functioning gonadotroph pituitary adenoma present with large tumors that are detected based on the occurrence of symptoms of compression that result from the enlarging sellar mass. Most patients, particularly men and postmenopausal women, do not develop symptoms of hormone excess and the lack of symptomatology results in delay in diagnosis. Our patients presented with significant polycythemia which resulted from excess testosterone and could have prompted earlier tumor detection if he had presented in an earlier stage. The incidence of polycythemia in male patients with functioning gonadotroph pituitary adenoma has previously been described in the literature in a few case reports.

Adrenal

ADRENAL - TUMORS

Adrenal Incidentalomas: Impact of Patient Age on Referral Rates for Endocrine Evaluation

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SAT-168

It is estimated that the prevalence of adrenal incidentaloma increases with age: ~3% of those aged 50 years, rising to 10% in those >70 years (1). Given the aging population together with increased utilisation of cross-sectional imaging in the UK (eg CT urogram, MR angiogram), we explored the proportion of patients with adrenal incidentaloma by age based on current imaging trends. Furthermore, there is no information currently available on the relationship between age and pattern of endocrine referrals. We extracted data for all CT and MRI scans from Jan 2018-Oct 2019 and used key phrases in radiology reports (eg adrenal adenoma/lesion/mass/nodule/incidentaloma, incidental adrenal, indeterminate adrenal) to identify potential lesions. We also extracted data on patient age and referral patterns as identified by a logged referral or an attendance (new or follow-up) to endocrine clinic 3 months post index scan, stratified by 10 year age groups. Where possible, we excluded false hits (eg no adrenal lesion). Preliminary data showed that, of the 2604 potential lesions identified by CT and MRI scans, 78.7% were on patients aged over 60 years. The numbers of identified lesions gradually increased with age to a peak in the 71-80 year age group after which these declined. Whilst patients younger that 60 years had fewer potential lesions identified, they were more likely to be referred to endocrine services (73 out of 55 patients; 13.2%) than those in the older age group (168 out of 2049; 8.2%; p<0.001). Indeed there was a statistically significant trend towards decreasing referral with age group (Chi-squared test for trend; p<0.001). In conclusion, patients over 60 years have a higher number of potential adrenal incidentalomas. However, this group is less likely to be referred for endocrine evaluation. This is particularly concerning given the large number of scans requested and the higher prevalence of incidentalomas in this age group. This study represents preparatory work on innovations to enhance case detection, particularly in the older age groups (2). 1. Fassnacht M, Arlt W, Bancos I, et al. Management of adrenal incidentalomas: European Society of Endocrinology Clinical Practice Guideline. Eur J Endocrinol. 2016;175:G1-G34 2. Hanna FWF, Issa BG, Lea SC, George C, Golash A, Firn M, Ogunmekan S, Maddock E, Sim J, Xydopoulos G, Fordham R, Fryer AA. Adrenal lesions found incidentally: how to improve clinical and cost-effectiveness. BMJ Open Quality. 2019;In press.

Bone and Mineral Metabolism

BONE DISEASE FROM BENCH TO BEDSIDE

Prevalence and Incidence of Hypomagnesemia and Hypermagnesemia in Medical Settings

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SUN-343

Electrolytes disturbances are commonly observed in clinical practice. However, magnesium (Mg) disorders are often poorly considered. Our primary aim was to update the prevalence and the incidence of hypomagnesemia and hypermagnesemia in a real-life scenario. The secondary aim was to investigate the association of Mg disturbances with age and gender. Data from patients whose Mg serum levels were measured between January 2015 and December 2017 at our University Hospital were recorded. Hypomagnesemia was defined by Mg levels <1.5 mg/dL and hypermagnesemia

by levels> 3.8 mg/dL. Hypo and hypermagnesemia cases were considered according to age, gender, year of observation and setting of subjects including outpatients and inpatients. In particular, inpatients were recruited from a total of 25 Hospital Divisions (i.e. Cardiology, Endocrinology, Geriatrics, Hematology, Intensive Care, Internal Medicine, Infectious Disease, Nephrology, Neonatal Intensive Care, Neurology, Neuropsychiatry, Neuroradiology, Oncology, Pulmonology, Pediatrics, Psychiatry, Rheumatology and Surgical Area that included 8 Units). Over the observation period, we recognized 12,696 patients whose Mg levels were checked. Prevalences of hypomagnesemia and hypermagnesemia were 8.43% (n=1071) and 1.78% (n=226) respectively. Hypomagnesemia was encountered more frequently in female [53.3% (n=560)] rather than in male patients [47.7 % (n=511)] ($\chi 2$= 4.03, p<0.045) and was significantly influenced by age: the higher prevalence of hypomagnesemia was found in patients over 65 yr. [59.01% (n=632)], whereas a lower prevalence was detected in the other age groups, specifically in 9.52 % (n=102) of patients aged 0-18 yr. and in 31.46 % (n=337) of patients between 19 and 65 yr. ($\chi 2$= 592.64; p<0.0001). Incidence of hypomagnesemia decreased over time with a borderline significance only in subjects over 65 yr. (r=-0.99; p=0.07). Geriatrics, Oncology and Intensive Care Division showed the highest incidences of hypomagnesemia. The hypermagnesemia prevalence was observed higher in outpatients in comparison with inpatients from any other Hospital Division and the hypermagnesemia incidence did not significantly change over time (r=0.96; p=0.16). Mg disorders, mainly hypomagnesemia, are quite common in clinical practice particularly in older hospitalized patients. Among the other electrolytes' disturbances, Mg disorders, because of life-threatening significances, may be checked and corrected.

Adrenal

ADRENAL CASE REPORTS II

Adrenal Crisis in Early Pregnancy

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SUN-164

Nausea and vomiting are common symptoms in pregnancy, ranging from occasional nausea to fulminant and intractable vomiting. Many underlying metabolic disorders can mimic this, primary adrenal insufficiency (PAI) being one of them. Here, we present a case of adrenal insufficiency early in pregnancy.

A 28 year old lady G1P0 at 8 weeks of gestations, with a past medical history of Grave's Disease, presented to our hospital on 3 occasions over one week with severe intractable nausea and vomiting. On prior visits, she had received intravenous fluids and discharged home. Laboratory work-up was ordered on the third visit and she was found to have severe hyponatremia with level of 111mMol/L. TSH and FT4 levels were both within the reference range. AM cortisol level was low at 2.3mcg/dL. ACTH and renin were both significantly elevated confirming diagnosis of PAI. Intravenous hydrocortisone was commenced immediately with rapid resolution of her symptoms and correction of her hyponatremia. She was followed at the endocrinology clinic, with appropriate up-titration of glucocorticoid and mineralocorticoid doses throughout her pregnancy.

Diagnosis of PAI is usually established prior to pregnancy. Presentation during pregnancy is not common, but it should be considered as a differential diagnosis when symptoms are out of proportion to the gestational status. Normal pregnancy is accompanied by progressive increase in circulating CRH and ACTH, increasing the levels of free cortisol as early as 7 weeks of gestation, rising up to 20-fold by the end of pregnancy. These physiologic changes could explain early presentation of adrenal crisis given insufficient glucocorticoid production. A delay in diagnosis and treatment increases the risk of maternal and fetal morbidity and mortality significantly.

Management of PAI during pregnancy can be challenging as there are no established guidelines and they have mainly been based on observational studies (1). The appropriate selection and dose of the glucocorticoid is important for the treatment of PAI to minimize adverse effects on mother and baby (2). At the time of active labor and delivery, stress doses of glucocorticoids need to be administered to prevent adrenal crisis (3).

In conclusion, early diagnosis and appropriate management of PAI during pregnancy is necessary to sustain a healthy pregnancy.

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Diabetes Mellitus and Glucose Metabolism

LIPIDS, OBESITY AND METABOLIC DISEASE

Increased Fibroblast Growth Factor 21 Protein Expression via in Vivo Delivery of a Liver-Specific Expression Plasmid

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SAT-652

Fibroblast growth factor 21 (FGF21) is an important liver-secreted hormone that activates thermogenesis in white and brown fat deposits. In various models of obesity, FGF21 administration consistently facilitates weight loss and improved metabolic function. Several FGF21 variants,