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SAT-546

Primary Aldosteronism (PA) carries significant cardiometabolic risk, over and above those attributable to hypertension alone. The Endocrine Society guidelines recommend adrenalectomy in those with unilateral disease. However surgery is likely to become unsustainable in public healthcare systems as more patients are diagnosed with PA. Already, surgery may not be feasible in some patients due to co-morbidities, others are reluctant to have the whole adrenal gland removed when excess aldosterone can be localised to small APA(s) in 1 gland.

The FABULAS Study explores if EUS-RFA is a safe alternative to left-sided adrenalectomy (ClinicalTrials.gov ID NCT03405025). This multicentre phase-1 study comprises 3 groups of 10 patients with proven PA and left APAs. Successive groups have an increasing benefit:risk ratio for surgery. The first 4 ablation procedures are assessed by an independent safety committee before progression into the next, overlapping group. The primary outcomes are safety and feasibility of EUS-RFA. Safety is assessed throughout the study, including measures of intra-procedure adrenomedullary activation. Efficacy is evaluated by biochemistry, home / clinic BPs, and quantitative ^{11}C-metomidate PET-CT at baseline and 6 months post-ablation.

RFA is performed using a Starmed catheter, small enough to pass through a 19-gauge needle, through the stomach. Ablation has been performed in 6 patients (median age 63-years). Mean tumour size was 17mm (range 12-36mm). Plasma metanephrine levels remained stable during RFA. 2 adverse events occurred within the first 48hours post-ablation: AF in a patient with known paroxysmal AF, and an episode of pyrexia and raised CRP attributed to tissue infarction. Both events were deemed 'not unexpected' by the safety committee. Most patients have benefited clinically post-ablation. This is illustrated by a 65-year-old man with previously uncontrolled hypertension despite 4 antihypertensive medications, including spironolactone. Baseline aldosterone/renin ratio (ARR) was >200 (PA likely if ARR>60). PET CT revealed a 15mm left adrenal nodule with avid metomidate uptake and an SUVmax ratio of 1.92 (SUVmax ratio >1.25 suggestive of unilateral disease). He underwent uneventful EUS-RFA. 6 months post-ablation his ARR has normalised to 26. On repeat PET CT the metomidate avid adenoma is no longer hot, with a drop in both the SUVmax measured over the APA (31 pre-, and 5 post-ablation) and a reduction in the SUVmax ratio to 1.04. Most importantly, his home BP averages 124/83mmHg and he is thrilled to be off all treatment.

Retrospective reports exist of successful percutaneous and retroperitoneal RFA of APAs. FABULAS is the first prospective study, using a minimally invasive, endoscopic route. If proven to be safe and

effective EUS-RFA will open the doors for more patients to receive definitive treatment, potentially even those with bilateral disease.

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS II

Use of Metabolic Syndrome Severity to Assess Treatment with Vitamin-E and Pioglitazone for Non-Alcoholic Steatohepatitis

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MON-673

BACKGROUND: Non-alcoholic steatohepatitis (NASH) represents inflammatory and fibrotic changes in the setting of non-alcoholic fatty liver disease (NAFLD) and can progress to cirrhosis. While clinical management of NASH has proven difficult, the Pioglitazone, Vitamin E or Placebo NASH study (PIVENS) demonstrated that treatment with either pioglitazone or vitamin-E increased odds of NASH-resolution. NASH is strongly associated with insulin resistance and the metabolic syndrome (MetS) as both a predictor and an outcome, though this has only been studied using dichotomous MetS criteria (e.g. ATP-III). We previously formulated a sex- and race/ethnicity-specific MetS severity Z-score (MetS-Z) that serves as a continuous measure of metabolic dysregulation. We hypothesized: 1) there would be a decrease in severity of MetS over the course of intervention in PIVENS and 2) the degree of decrease in MetS-Z early in the course of treatment would be a predictor of future NASH resolution. METHODS: Participants in PIVENS (n=201) had biopsy-confirmed NASH at baseline and were randomized to receive pioglitazone, vitamin E or placebo for 96 weeks, when they received repeat biopsy to assess for NASH resolution. We compared levels of MetS-Z and its standardized effect size (the absolute observed difference in MetS-Z for an individual divided by the overall baseline standard deviation of MetS-Z) at baseline, 48 weeks and 96 weeks and used logistic regression to determine associations between baseline MetS and the change in MetS from 0–48 weeks on ultimate NASH resolution—both overall and by intervention group. RESULTS: During the 96 weeks of intervention, 73 participants (363%) exhibited NASH resolution. Baseline MetS-Z was inversely associated with odds of NASH resolution, such that those with higher MetS severity at baseline were less likely to experience NASH resolution (odds ratio [OR] per 1-SD of MetS-Z-score: 0.54, 95% confidence interval [CI] 0.33,0.88). Of the three intervention groups, the decrease in MetS-Z during initial 48 weeks of intervention was greatest for pioglitazone treatment (effect-size: -0.31, CI -0.15,-0.48). During treatment with vitamin E, those with significant 48-week changes in MetS-Z tended to be those with vs. without ultimate NASH resolution (-0.18 vs. -0.05). In the group overall, 48-week change in MetS-Z was inversely associated with NASH resolution (OR of per 1-SD change: 0.56, CI 0.35,0.88). CONCLUSION: Individuals with more severe metabolic derangement at baseline were less likely to exhibit NASH resolution, suggesting that individuals may have a threshold of MetS-severity beyond which successful treatment is unlikely. As hypothesized, a decrease in MetS-Z over time was associated with improved odds

of NASH resolution. As an integrated marker of metabolic abnormalities, MetS-Z may be a new way non-invasively follow for successful treatment of NASH.

Diabetes Mellitus and Glucose Metabolism

GESTATIONAL DIABETES, DIABETES IN PREGNANCY, AND IN UTERO EXPOSURES

Increased Risk of Gestational Diabetes Mellitus in Egyptian Females Undergoing In Vitro Fertilization in Alexandria

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SUN-633

Increased Risk of Gestational Diabetes Mellitus in Egyptian Females Undergoing in Vitro Fertilization in Alexandria

Background: Gestational diabetes mellitus (GDM) is one of the most frequent maternal complications during pregnancy. It has been estimated that most of the cases of hyperglycemia during pregnancy are attributed to GDM (75–90%). Pregnancy complicated with GDM is associated with adverse acute and long term consequences for both mother and infant. Risk factors for GDM include; a previous history of GDM, a family history of type 2 DM, advanced maternal age, overweight, and polycystic ovary syndrome (PCOS). This was an observational prospective study, using data of pregnant women conceived following in vitro fertilization (IVF) and spontaneously, aimed to determine the risk of GDM among Egyptian females following IVF compared to spontaneous pregnancy. The present study included two age and BMI- matched groups. Group I (GpI): 55 pregnant females conceived by IVF, and Group II (GpII): 55 pregnant females conceived spontaneously. We excluded females with a history of pre-pregnancy diabetes, glucose intolerance, corticosteroid therapy, twin pregnancy, and age above 39 years. In addition to detailed history taking, clinical examination and routine laboratory investigations, one- step oral glucose tolerance test (OGTT) was performed at gestational week 20 and 28 in all subjects. Fetal biometric measurements were performed in the third trimester using ultrasonography assessment.

Results: On using the one-step strategy (75 gm OGTT test) to screen for GDM at 28 weeks of gestation; GDM was statistically significantly higher in Gp I (who had undergone IVF) compared to Gp II (spontaneous pregnancy) (20% and 5.5% respectively), p= 0.022. Moreover, it was also noticed that GDM occurred earlier on screening at 20 weeks of gestation in Gp I (16.4%) compared to (3.6%) in Gp II, p= 0.026. Among subjects who had undergone IVF (Gp I), 18.2% had a history of PCOS. There was no statistically significant difference in the incidence of GDM among subjects with PCOS compared to those without a history of PCOS at gestational week 20 and at week 28 in Gp I (p=0.661, and p=0.099 respectively). Data of fetal biometry done at the third trimester showed no significant statistical difference in head circumference, biparietal diameter, abdominal circumference or femur length between both groups. However, fetal body weight was significantly higher in the IVF group (Gp I) compared to (Gp II), p=0.003.**Conclusion:** These findings show that IVF may increase the risk for GDM, moreover, GDM occurs earlier, recommending selective early screening for GDM in this population. **References:** Guariguata L, Linnenkamp U, Beagley J, Whiting DR, Cho NH. Global estimates of the prevalence of hyperglycaemia in pregnancy. Diabetes Res Clin Pract 2014; 103, (2) 176–85.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORTS I

Venous Thromboembolism Caused by Primary Hyperparathyroidism

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SAT-344

Background. Primary hyperparathyroidism (PHPT) is often overlooked as a potential etiology of hypercoagulability and thrombosis. We present a case in which PHPT was the only identifiable risk factor for an episode of venous thromboembolism (VTE).

Case. A 64 year old female with no chronic health problems presented to the emergency department for evaluation of dyspnea and right lower extremity pain. Symptoms had steadily increased in severity over approximately one week. The patient denied any long distance travel, sustained immobility, or tobacco use, and she was not taking any prescription or over-the-counter medications. Examination was notable for right distal lower extremity pain to palpation, but no swelling or erythema was observed. Elevated D-dimer (4.00 mg/mL, < 0.50) and hypercalcemia (12.7 mg/dL, 8.8–10.5) were discovered on initial laboratory testing, and an ECG showed sinus tachycardia. CT angiography of the chest revealed extensive, bilateral pulmonary emboli, and lower extremity venous Doppler studies confirmed a right lower extremity deep venous thrombus (DVT). Unequivocally elevated intact parathyroid hormone (PTH) level (235 pg/mL, 12–88) confirmed a diagnosis of PHPT, and an apparent left lower parathyroid adenoma was identified by both Tc99m parathyroid scintigraphy and neck ultrasonography. After hydration, serum calcium remained in the range of 11.5–12.0 mg/dL. The patient was discharged home on the direct factor Xa inhibitor rivaroxaban (Xarelto™) with a plan for six months of anticoagulation before parathyroidectomy.

Conclusions. The skeletal, neuromuscular, cardiovascular, and neuropsychiatric manifestations of PHPT are well described, but little is published regarding PHPT and VTE. In a multivariate analysis of participants in the fourth and fifth Tromsø surveys controlled for age, sex, and BMI, simultaneous elevations of PTH and serum calcium were associated with a nearly 80% increased risk of VTE. PHPT has been linked to several changes that predispose to a hypercoagulable state and thrombosis including dehydration, vasoconstriction, increased platelet count and levels of coagulation factors VII and X, elevated tissue plasminogen activator inhibitor-1 and D-dimer levels, and diminished tissue factor pathway inhibitor levels. Unfortunately, risk of VTE is not addressed in series documenting long-term outcomes for patients undergoing parathyroidectomy