abdominal CT scans and countermovement two-legged jumping test on ground reaction force platform. SMA and SMD were measured at CT images at L3 vertebral level. Mean age of 1523 patients was 74.7 years and 65.1% was female. For peak jump force, L3SMA was stronger contributing factor than SMD (standardized beta of SMA vs. SMD = 0.16 vs. 0.08 for men; 0.12 vs. 0.05 for women; p < 0.05 for all). However, SMD was a better indicator of peak jump power compared to SMA in both sexes (standardized beta of SMA vs. SMA = 0.21 vs. 0.17 for men; 0.15 vs. 0.13 for women; p < 0.05 for all). These associations remained robust even after adjustment for age, height, weight, triglyceride, HDL cholesterol, high sensitivity C-reactive protein, and insulin resistance. One standard deviation decrease of SMD was associated with 8% elevated odds of low jump power relative to weight after adjustment for potential confounders (adjusted OR = 1.08, p < 0.001), whereas the association between SMA and low jump power was attenuated. SMD improved discrimination for individuals with low jump power when added to SMA and conventional risk factors (Area under the receiver-operating characteristics curve 0.732 to 0.750, p=0.006). SMD was an independent predictor of jump power with additive discriminatory value to SMA and conventional risk factors. Our findings suggest the potential complimentary role of SMD as muscle quality indicator beyond muscle mass as a surrogate for muscle function.

**Diabetes Mellitus and Glucose Metabolism**

**GESTATIONAL DIABETES, DIABETES IN PREGNANCY, AND IN UTERO EXPOSURES**

**Effects of Steroid Hormones on Lipogenesis and Insulin Sensitivity - an Insight into the Involvement of the Wnt Signaling Pathway**

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**SUN-644**

Gestational diabetes mellitus (GDM), a condition in which the state of pregnancy induces the development of diabetes, is characterized by heightened maternal insulin resistance. The levels of sex steroid hormones generally increase during pregnancy. It is thought that imbalance in the levels of steroids like estradiol (E2) and progesterone (P4) with respect to each other, may increase susceptibility towards GDM. To understand the metabolic effects of these steroids, ovariectomized (OVX) rats were treated with E2 or P4 at dosages mimicking the true hormonal status at dosages mimicking the true hormonal status. The cumulative food intake (391.3±14.6 g to 312.5±9.0 g, p<0.001, n≥12) as well as gain (145.4±1.4% to 108.3±0.8%, p<0.001, n≥12) over the course of the 23 day-treatment period. It also decreased the quantity of accumulated gonadal white adipose tissue (GWAT) in the body (3.3±0.2 g to 1.1±0.1 g, p<0.001) and repressed expression of lpl (1.3±0.2 fold, p<0.05) and other lipogenesis markers. P4, on the other hand, enhanced lpl expression (3.7±0.2 fold, p<0.001), but did not affect the total quantity of GWAT. Further, E2 treatment brought about an increase in the expression of insulin sensitivity markers like insr in the GWAT (4.5±0.6 fold, p<0.001) and soleus skeletal muscle (6.2±0.3 fold, p<0.001), as well as an increase in the protein levels of GLUT4.

**Adrenal**

**ADRENAL - TUMORS**

**Pattern and Spectrum of Adrenal Disorders Seen Among Adults in Southern Iraq. A Tertiary Center Experiences**

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**SAT-164**

**Background:** Adrenal disorders is rare life-threatening conditions needed high awareness for earlier diagnosis. The aim of this study is to see the pattern and spectrum of adrenal disorders in Southern Iraq.

**Methods:** Retrospective electronic database analysis of Faiha Specialized Diabetes, Endocrine and Metabolism Center (FDEMC) in Basrah, the largest tertiary referring Center in the Southern Iraq. Only adults 18 years and above analysed.

**Results:** The total referred patients for presumed adrenal disorders were 5064(6%) of 83473 new patients seen over 11 years for the period of August 2008 to August 2019. The commonest adrenal disease were due to glucocorticoids misuse in 2407/5064 (47.5%),followed by adrenal endocrine hypertension in 883/5064 (17.4%),then adrenal insufficiency in 340/5064 (6.7%), hirsutism in 264/5064 (5.2%), hypopituitarism 85/5064 (1.6%) and congenital adrenal hyperplasia in 78/5064 (1.5%).Rare causes of adrenal disorder were primary aldosteronism in 30/5064 (0.5%), Addison disease in 26/5064 (0.5%), autoimmune polyendocrine syndromes in 19/5064 (0.4%), ACTH dependent Cushing syndrome in 17(0.3%), ACTH independent Cushing syndrome in 4(0.07%), subclinical Cushing syndrome in 4(0.07%), octocpt ACTH syndrome in 10.01%), adrenal cyst in 9(0.1%), adrenal myelolipoma in 5(0.09%), adrenocortical carcinoma in 3(0.05%),and paraganglioma in 20.04%).One of the paraganglioma were secretory. Patients characteristics for those with glucocorticoids misuse showed that female forming the bulk of cases in 1708/2407 (70.9%), and mean age of 39.5±12.3 years. Urban constitutes 1306/2407 (54.3%),and 629/2407 (26.1%) were illiterates. There were 706/2407 (29.3%) with established type 2 diabetes mellitus(with all the risks of loss of glycemic control) and glucocorticoids misuse causes 105/2407 (4.3%) incident diabetes.

**Conclusion:** Glucocorticoids misuse constituted the bulk of referral for adrenal disorders in Basrah. A lot of work needed to reduce the prevalence of this new high-risk iatrogenic disease.
GDM susceptibility in pregnant women is most commonly associated with SNPs in the tcf7l2 gene, the product of which is an effector of the canonical Wnt signaling pathway. It has also been reported that certain actions of steroid hormones are mediated by Wnt signaling. Moreover, we found that tcf7l2 and other components of this pathway (β-catenin protein, lrp5) were up-regulated following treatments with E2, (3.8±0.2 fold, p<0.001 in GWAT; 5.3±0.2 fold, p<0.001 in soleus) and P2, (2.1±0.2 fold, p<0.05 in GWAT; 2.9±0.3 fold, p<0.001 in soleus). We therefore hypothesized that the metabolic actions of these steroids may be mediated by Wnt signaling. To test this hypothesis, we conducted experiments in which OVX rats treated with steroids as described above, were additionally treated with niclosamide (NIC), a Wnt pathway inhibitor. NIC in conjunction with E2, increased GWAT accumulation and lipogenesis, thereby reversing the action of E2. NIC treatment in OVX rats did not change these parameters, indicating that this effect is specific to the inhibition of Wnt signaling modulated by E2. Additionally, NIC inhibited the E2-modulated increase in insulin sensitivity in GWAT and soleus. Taken together, the results suggest that the actions of E2 on insulin sensitivity and lipogenesis are mediated by the Wnt signaling pathway. No such observation was made with respect to the effect of P2 on lipogenesis. Understanding the mechanistic actions of these steroids may play an important role in devising methods to prevent conditions like GDM before its onset.

Adipose Tissue, Appetite, and Obesity

OBESITY TREATMENT: GUT HORMONES, DRUG THERAPY, BARIATIC SURGERY AND DIET

The Efficacy and Safety of Sodium-Glucose Transport Protein 2 (SGLT-2) Inhibitors for Weight Loss Among Individuals Without Diabetes: A Systematic Review and Meta-Analysis

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MON-602

Background
With the growing prevalence of obesity and its associated metabolic consequences, new strategies for safe and effective weight loss are called for. SGLT2i is a class oral antidiabetic agents that lowers glucose levels through renal glucose loss, with weight reduction as a consequence. Hence, its role in diabetes and obesity is well-recognized. However, its use among individuals without diabetes for safe and durable weight loss has not yet been sufficiently evaluated, although initial studies are promising.

Objective
To determine the efficacy and safety of SGLT2i compared to placebo among subjects without diabetes mellitus in terms of weight loss and adverse effects.

Methods
A meta-analysis was conducted on randomized controlled trials (RCTs) comparing different SGLT2i and placebo among patients without diabetes mellitus using RevMan 5.3 software.

Results
Five trials involving 779 patients met the eligibility criteria. SGLT2i used in these studies include Canagliflozin, Dapagliflozin, Sergliflozin and Remogliflozin with treatment duration ranging from 2 to 26 weeks.

Pooled data of these 5 trials showed a significant difference in weight loss among subjects given SGLT2i (MD -1.34 kg [95% CI -1.51, -1.17]; p < 0.00001, I² = 0%) as compared to placebo. Four studies reported change in BMI as an outcome measure, likewise showing a significant difference favoring the use of SGLT2i (MD -0.50 [95% CI -0.56, -0.44]; p < 0.0001, I² = 0%). Two RCTs reported the percentage of weight loss. There was a significantly higher proportion of subjects achieving >5% weight loss among those given SGLT2i (RR 1.61 [95% CI 1.09, 2.38]; p = 0.02, I² = 0%). There was no significant difference in the proportion of subjects who achieved >10% weight loss (RR 1.42 [95% CI 0.60, 3.33]; p = 0.42, I² = 12%). Urogenital infections were more common in the SGLT2i group (RR 2.62 [95% CI 1.76, 3.91], p < 0.00001, I² = 0%) as reported in 4 studies. Only one study reported occurrence of hypoglycemia which did not differ significantly between both groups.

Conclusion
Although this meta-analysis shows a statistically significant decrease in weight (-1.34 kg, [95% CI -1.51, -1.17]) with the use of SGLT2i among subjects without diabetes, this might not be clinically relevant. With the increased risk of urogenital infections with its use, there is insufficient evidence to recommend its routine use as monotherapy for weight loss outside the population of individuals with diabetes.

References
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Tumor Biology

ENDOCRINE NEOPLASIA CASE REPORTS II

Acute Abdominal Pain and the Pheochromocytoma

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MON-915

Background:
Pheochromocytomas are neuroendocrine tumors that release large amounts of metanephrines and catecholamines, resulting in a wide array of symptoms including hypertension, diaphoresis, and headaches. If left unrecognized they can lead to serious morbidity including ischemic or hemorrhagic CVA, encephalopathy, MI, Aortic Dissection, and renal injury.

Clinical Case:
A 62-year-old male began having difficulties with his blood pressure over the past year. He was first hospitalized for an acute ischemic CVA with hypertensive urgency. His blood pressure was generally controlled throughout the admission but he continued to have intermittent elevations. After transferring to an inpatient rehabilitation unit he had an episode of acute nausea, severe lower abdominal pain, and emesis following dinner. He was tachycardic and