Rt-CGM1 and Rt-CGM2 showed increased MARD vs SMBG during exercise. Interestingly, lower MARD was seen for FGM during aerobic exercise likely due to bias towards lower glucose levels at baseline as reported by FGM. There was no significant difference seen during exercise between rt-CGM1 and rt-CGM2 despite the differing location of the sensors (transdermal vs subcutaneous) and method of glucose analysis (glucose oxidase vs fluorescence).
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Adipose Tissue, Appetite, and Obesity

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

Very Low-Calorie Ketogenic Diet Modifies Visceral Adipose Tissue Distribution and Taxonomic Composition of Gut Microbiota in Obese Patients with Insulin Resistance Depending on Protein Source

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Background. Short-term interventions based on very low-calorie ketogenic diets (VLCKDs) and meal replacements may be prescribed to selected overweight or obese patients. Few, inconsistent data are available on protein intake from various sources on body weight, composition of gut microbiota and metabolic outcomes in these patients.
Aim. To compare efficacy, safety and effect on microbiota composition of short-term isocaloric very low-calorie ketogenic diets encompassing whey, vegetable or animal proteins, in obese patients with insulin resistance.
Materials and Methods. 48 obese patients (19 males and 29 females) with HOMA-index ≥ 2.5, age mean: 55.2 years (range: 45-73), BMI mean 35.9 kg/m2 (range: 30.2 - 46.4) were randomly assigned to three isocaloric VLCKD regimens (≤800 kcal/day) containing either whey, plant or animal proteins for 45 days, with assessments of anthropometric indexes, blood and urine chemistry, body composition, muscle strength, taxonomic composition of the gut microbiome.
Results. A significant reduction of body weight, BMI, blood pressure, waist circumference, HOMA index, insulin, total and LDL cholesterol was observed in all the patients, regardless the dietary protein source. Patients fed with whey proteins and vegetable proteins had a more pronounced decrease of visceral adipose tissue (VAT) compared with the group fed with animal proteins. The markers of renal function slightly worsened in the group fed with animal proteins. A decrease in relative abundance of Firmicutes and an increase of Bacteroidetes was observed after VLCKDs. This pattern was less pronounced in patients consuming animal proteins.
Conclusions. VLCKDs lead to significant weight loss and a striking improvement of the metabolic parameters over a short period of time. VLCKDs based on whey or vegetable proteins induce a larger reduction of VAT, have a safer profile and determine a healthier microbiota composition compared to those containing animal proteins.

Reproductive Endocrinology

HYPERANDROGENISM

Androgens Modulate Lipid Metabolism and Absorption in Control and Polycystic Ovary-Metabolic Syndrome Conditions

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Introduction: In polycystic ovary syndrome (PCOS) a high plasma level of androgens has been correlated with an adverse plasma lipid profile. At present we do not know the physiological or mechanistic pathways of how androgens regulate lipid metabolism under control or PCOS conditions. We have shown flutamide, an androgen receptor (AR) inhibitor, reduces the plasma concentration of triglycerides (TG) and apoB-lipoproteins, and intestinal secretion of TG. **Aim:** The aim of this study was to determine the direct physiological and mechanistic effects of androgens, Testosterone (T) and dihydrotestosterone (DHT), on lipid metabolism using a PCOS-prone rodent model. **Methods:** Control and PCOS-prone animals were administered vehicle, T or DHT for 7 days. PCOS-prone animals also present with the Metabolic Syndrome (MetS). Following treatment animals underwent a mesenteric lymphatic cannulation procedure to determine effects on intestinal chylomicron (CM-apoB48) and lipid secretion, and absorption using radiolabelled [^{3}H]-cholesterol and [^{14}C]-palmitic acid.
Results: Plasma LDL-C was increased with DHT treatment in control animals, and with both T & DHT treatment in PCOS. Intestinal absorption of TG and cholesterol were increased in T and DHT treated PCOS animals but not control animals. Whereas DHT reduced intestinal CM-apoB48 secretion in both control and PCOS groups. These effects were associated with changes in genes and protein expression in lipogenic (SREBP1a/c&2, SREBP1c, SREBP-2, ACC) and steroidogenic pathways (AR, ER and SRDA51) in the liver and intestine.
Conclusion: These results demonstrate androgens modulate lipid metabolism and absorption. T and DHT differentially affect intestinal chylomicron secretion and lipid absorption in PCOS-MetS and control conditions. In conclusion, these results suggest that androgens may directly cause or exacerbate lipid and lipoprotein metabolism in conditions of hyperandrogenemia and the MetS.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORTS II

Hypocalcemia: Hypoparathyroidism or Calcium Chelation in a Transfusion-Dependent Patient?

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