Abbreviations: MetS, CRS

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0182

Triglyceride-To-High-Density-Lipoprotein-Cholesterol Ratio as a Predictor for Metabolic Syndrome According to Obesity Onset in Women With Severe Obesity

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Abstract

Background: Obesity is associated with the development of Insulin resistance (IR) and the metabolic syndrome (MS). However, it is still unknown whether the stage of life that obesity has developed offers a risk regardless of the individual's adiposity level in adulthood. Objective: To evaluate the association between MS, obesity onset and the TG / HDL-c ratio in women with severe obesity and to establish cutoff points for the TG/HDL-c ratio considering the obesity onset. Methods: Forty-seven women with severe obesity who will undergo bariatric surgery were evaluated. Anthropometric and metabolic parameters were measured and the HOMA-IR and the TG / HDL-c ratio were calculated. The volunteers were grouped according obesity onset. The Receiver Operating Characteristic (ROC) was explored and built to define cutoff points for TG/HDL-C fractions as predictors of MS. Results: The prevalence of women with MS was 76,59%. Most of the sample (63.8%) reported having started obesity in adulthood. Women who developed obesity during infancy/ adolescence had higher weight (p=0.008), body mass index (p=0.031), and hip circumference (p=0.036) compared to those who developed in adulthood; however, no association was found between obesity onset with SM. The TG/HDL-C cutoff points established for those who developed early and late obesity were 2.30 and 2.19, respectively. Conclusion: The life phase of obesity development was not related with MS, however, women with a diagnosis of early obesity had higher anthropometric markers of adiposity. The TG/HDL-c ratio might be useful as a predictor of MS according to the early or late development of obesity.

Keywords: Obesity, metabolic syndrome, triglycerides, HDL-c, Insulin Resistance

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0183

A Telemedicine Approach For Assessment, Empowerment And Triage For COVID-19 Patients with Comorbidities

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Abstract

Introduction: COVID-19 pandemic has forced healthcare system to organize the healthcare delivery differently. Methodology: We conducted a retrospective analysis of the Diabetes Wellness Care (DWC) database to understand implications of new virtual clinic model initiated through telemedicine which was extended to manage COVID-19 patients (n=218) Results: 17% of COVID-19 patients were known cases of Type 2 Diabetes (n=37). In these subset of patients, typical COVID-19 pneumonia was present in 45% (n= 17) with 35% (n= 6) requiring hospitalization. COPD/ bronchial asthma pre-existed in 14.5% (n=31) of patients with 3 patients required hospitalization and of which one patient was a known case of diabetes. 11% (n=23) were known hypertensives of which one patient required hospitalization, with coexisting diabetes. 5.5% (n=12) had Coronary Artery Disease and none required hospitalization. 6 patients had concomitant renal impairment. Patients were under strict recommendations to monitor blood glucose and BP by SMBG and Home-Based Blood Pressure Monitoring (HBPM). Doxycycline and ivermectin were prescribed. Azithromycin was added if cough or sore throat was present. Favipiravir was prescribed if elevated CRP and IL-6 with concomitant fever. Pulse oximeter to measure SpO2 was convenient and clinically meaningful during home isolation. X- Ray chest or HRCT scan of chest was mandated including elderly > 60 years. LMWH was utilized only in 2 cases in home isolation (with high D Dimer). 8 patients required hospitalization. Conclusion: Our telemedicine approach enabled a prompt detection of the symptoms, which enabled an effective triage and led to isolation of infectious patients

Keywords: Telemedicine, COVID-19, Comorbidities, Diabetes, Hypertension

Abbreviations: SMBG- Self Monitoring of Blood Glucose

Funding and Conflicts of Interest: None

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0184

Improving of Metabolic Profile With Vitamin D Supplements in Pregnant Women

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Abstract

Background. Serum 25-hydroxy-vitamin D deficiency is related to metabolic diseases as polycystic ovary syndrome, obesity, insulin resistance, cardiovascular diseases, cancer, gestational diabetes mellitus (GDM). Objective: To evaluate the effect of vitamin D therapy on metabolic parameters in pregnant women. Methods: There was a 16-week study of 62 participants with gestational diabetes mellitus. All pregnant women followed an appropriate diet and physical activity. Management of 37 women included 2,000 IU/day of cholecalciferol per

os. Body mass index (BMI), hemoglobin A1c (HbA1c), fasting plasma glucose (FPG), plasma 25- (OH) vitamin D, low-density lipoprotein cholesterol (LDL-C), homeostatic model assessment of insulin resistance (HOMA-ir) were estimated in pregnant women with GDM before and after the 16-week period. Quantitative data are expressed as the mean ± SD. The correlation between variables was assessed using the Pearson correlation coefficient. P-value <0.05 was considered statistically significant. All information was processed with SPSS 21.0. Results: The mean BMI was (30,2±2,34) kg/m2, baseline serum 25-(OH) vitamin D levels in all women were in a deficient limit (less than 30 nmol/L). HOMA in both groups was more than 3. The mean LDL-C was (3,3±0,63) mmol/l and didn`t differ in the two groups. 25-(OH) vitamin D levels were inversely associated with BMI (r=–0.4; P=0.05), HOMA (r=–0.6; P=0.005), LDL-C (r=–0.3; P=0.04). Vitamin D therapy has had significant improvement in plasma LDL-C concentration, HbA1c, FPG in women with GDM (P<0.05). Compared with the Ist group cholecalciferol therapy had lead to a reduction of HOMA in the IInd group by (2,3±0,94) in 4 months (P < 0.05). Conclusions. The daily intake of vitamin D was accompanied by the significant glycemic improvement and the majority of women achieved diabetes control without insulin injections. Strong inverse correlation between 25 (OH) vitamin D levels and HOMA, reduction of HOMA can indicate improved sensitivity to insulin and benefits of vitamin D supplementation for the management of insulin resistance in GDM with vitamin D insufficiency.

Keywords: vitamin D, gestational diabetes, cholecalciferol.

Abbreviations: GDM, FPG, LDL-C, HOMA, 25(OH)D

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0185

Repercussion of Maternal Diabetes and Post-Weaning High-Fat Diet Consumption in Laboratory Animals

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Abstract

Background: Epidemiological and animal studies show diabetes-induced fetal programming can lead to adverse complications in the late-life of offspring. Western society consumes more calorie-rich foods every day. Objective: In order to understand the association between the influence of a hyperglycemic intrauterine environment and the consumption of a high-fat diet after weaning, this study was carried out with laboratory animals to reproduce the conditions of our current society. Methods: Adult Sprague Dawley rats from mothers with mild diabetes were mated with healthy males to obtain offspring. The female pups (2/mother) were fed a standard (OD/SD, n=9 rats) or high-fat (OD/HFD, n=12 rats) diet from weaning up to adulthood. At four months old, the oral glucose tolerance test (OGTT) was carried out before pregnancy and confirmed glucose intolerance status in both groups. Following, the rats were submitted to cesarean section to evaluate maternal reproductive and fetal development outcomes. P<0.05 was considered for statistically significant difference. Results: At the end of pregnancy, the OD/HFD rats presented a higher percentage of embryo losses, lower number of corpora lutea, alive fetuses, and implantation. The placental and fetal weights were reduced, and the newborns were classified as small for gestational age compared to OD/SD, contributing to the lower litter weight. Conclusion: Our findings suggest the consumption of a post-weaning high-fat diet in association to maternal diabetes influence cause a glucose intolerance at the adulthood of the female offspring and exacerbate impaired reproductive repercussions and fetal development to the next generation.

Keywords: Diabetes, rat, offspring, fetal programming, high-fat diet

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0186

Insulin Producing Cells from Adipose Mesenchymal Stromal Origin as Implant Strategy in Diabetic Rats

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Abstract

Type 1 diabetes mellitus (DM1) is an autoimmune disease characterized by the destruction of insulin-producing pancreatic β cells. Among the current experimental therapies, we highlight the use of transdifferentiated mesenchymal stromal cells (MSCs) into insulin-producing cells (IPCs). Here, we studied the strategy of implanting IPCs differentiated from adipose tissue MSCs in the subcutaneous region (SC) of rats to investigate their protection against hyperglycemia induced by streptozotocin. The first phase of this study (in vitro) was to characterize adipose-derived stromal cells (ADSCs) and to evaluate the protocol for their differentiation in IPCs. The second phase was to assess the functionality of IPCs in vivo three and eight weeks after implant. The cells were then implanted in SC after one-week DM1 model induction (Process: 30626). The implant improved hyperglycemia and reduced the serum content of advanced glycation end products (AGEs) in diabetic rats at three weeks, but this effect was not observed after the longer period of eight weeks, showing a transient effect. Serum C-peptide was not detected in the SC group, neither after three nor eight weeks of DM1 model. Regarding animal body weight, both diabetic and implanted rats maintained their weight over time, while the Sham group presented the natural increase related to the normal growth of the animal. Together, these data are promising but also need improvement in the effectiveness of the therapy, with future studies attempting implantation of a larger number of cells or multiple implants, since the subcutaneous access is not very invasive and easy to perform.

Keywords: Insulin producing cells, subcutaneous implant, adipose mesenchymal stromal cells, diabetic rats

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