newly diagnosed type 2 diabetes patients, attending the endocrinology OPD at a tertiary teaching hospital were enrolled in this treatment related follow up study after institutional ethical committee clearance, conducted between May 2019 to February 2020. Patients with HbA1C > 8.5% to <12.5% were included in the study. Metabolic (FPG, PPG, HbA1c), and inflammatory parameters (Serum IL-6, Serum TNF alpha levels) were assessed both at baseline and after 9 months of insulin treatment. A simple,conventional twice daily premixed insulin was initiated at a starting dose of insulin at 0.5 U/kg/day and the dose was titrated according to FPG and 2 hr PPG in order to maintain glycemic goals as per ADA standards. **Results:** The study included 40 subjects with a mean age of 43.9 years and a mean BMI of 26.46 kg/m2. At the end of 9 months of the study, mean FPG, PPG, HbA1C were significantly reduced [FPG (118.45± 24.74mg/dl), PPG (152± 25 mg/dl), HbA1c (6.67± 0.42%)] as compared to baseline [FPG, (218.4± 37.84mg/dl), PPG (307±62mg/dl), HbA1C (9.95± 1.39%) (p <0.001). A statistically significant decrease in inflammatory markers like IL6, TNF alpha, from baseline to 9 months [.IL6 5.365±1.465 to 2.819±0.697 pg/ml, S.TNF alpha 36.476±16.902 to 11.274±3.712 pg/ml.] (p <0.001) was observed. Correlation studies revealed at 9 months, a highly significant positive correlation between FPG, PPG and IL6 and TNF alpha levels (p<0 .001), in comparison with baseline (p< 0.05). However IL6 levels significantly correlated with HBA1c both at baseline and at 9 months (p<0.05), whereas only a non significant positive correlation with TNF alpha was observed. **Conclusion:** Early Insulin treatment has beneficial effect on both Inflammation and glucotoxicity in newly diagnosed Type2 DM. Effective, simple and early insulin regimen offers a pathophysiologic based therapeutic perspective aiming at improving the natural course of diabetes.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

Success of Online Education Related to New Data in T2D Management

Amy Larkin, PharmD[1], Julie Schrand, MA[2], Anne Le, PharmD[3].
[1]Medscape, Nicholasville, KY, USA, [2]Medscape, New York, NY, USA, [3]Medscape Education, Jacksonville, FL, USA.

We sought to determine if online continuing medical education (CME) could improve the knowledge and confidence of multiple specialties related to CVOT data for T2D therapies. The CME activity was a 30-minute online video panel discussion with synchronized slides focusing on new data at ADA 2020. A repeated pairs pre-/post-assessment study design and chi-square test (P <.05 is considered significant) assessed educational effect. The activity launched June 25, 2020 and data were collected through September 3, 2020. In total, 212 PCPs and 72 D/Es were included in the analysis. Overall, there were knowledge and confidence improvements seen among all groups from pre- to post-assessment: • 23% of PCPs (P<.01) and 24% of D/Es (P<.05) improved at recognizing the benefits of SGLT2 inhibitors across the class • 20% of PCPs (P=.NS) and 17% of D/Es (P<.05) improved at identifying new data presented at a conference • 15% of PCPs (P=.NS) and 13% of D/Es (P=.NS) improved at identifying class effect of SGLT2 inhibitors on hospitalizations for heart failure • 36% of PCPs and 25% of D/Es had measurable increases in confidence in treating patients with T2D and CVD Continued educational gaps: • 62% of PCPs and 39% of D/Es failed to identify benefits of SGLT2 inhibitors across the class • 45% of PCPs and 19% of D/Es failed to recognize new data presented at a conference • 58% of PCPs and 31% of D/Es failed to identify class effect of SGLT2 inhibitors on hospitalizations for heart failure This study demonstrates the success of online CME on improving knowledge and confidence of a multi-specialty group on CVOT data. Continued gaps were identified for future educational targets.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

The Association Between Time in Range %, and Physical & Functional Indices Amongst Older People With Type 2 Diabetes: A Cross Sectional Study

Yamit Basson-Shleymovich, B.P.T, Tali Cukierman-Yaffe, Dr., MD, Tal Yahalom-Peri, none, Michal Azmon, PT, P.hD.
Sheba medical center, Ramat-gan, Israel.

Diabetes is a major public health burden associated with high mortality, morbidity, hospitalization and health care services utilization rates. People with diabetes have an increased risk for mobility disability compared to those without diabetes, after controlling for age. People with diabetes also have a higher risk for falls and fractures. Data from the last several years suggests that this increased risk is not only due to diabetes co-morbidities but also due to an accelerated decline in physical capacity due to lower muscle quality and a more rapid decline in muscle mass (sarcopenia) and lower extremity strength over time. HBA1C is a measure of average glucose levels; however, it does not provide information about glycemic variability, or daily patterns of glycemia. In the last several years, several organizations have published consensus statements on the role of continuous glucose monitoring (CGM) in glucose control. The use of CGM has brought about the development of many glucose indices, amongst them is: Time In Range% (TIR) of 70–180 mg/dL (3.9–10 mmol/L). Less is known regarding the association between TIR and sarcopenia, muscle mass loss that leads to deterioration in mobility, disabilities and decline in physical indices in older people with diabetes. **Aims:** To assess among older people with diabetes type 2, the cross sectional association between: TIR and aerobic capacity, gait speed, strength, balance and frailty indices. **Methods:** A cross sectional study, conducted amongst people with diabetes over the age of 60. Participants were provided with a blinded CGM system- (I Pro2 carelink, Medtronic) for 1 week and underwent elaborate physical-functional assessment in the beginning and at the end of that week. The association between the % of time in range (Time in Range-TIR) and several physical indices was determined using linear regression.

Results: This analysis pertains to 55 men and women who completed the evaluation. After adjustment for age and gender, we found that 1% increase in TIR was associated with a 0.341 higher score on the 30 second Sit to Stand score (a measure of lower extremity strength) (P-value=0.02), a 0.351 higher score on the BERG scale (a measure of balance) (P-value=0.01), a 0.271 lower score on the timed up and go

score (a measure of fall risk and balance) (P-value=0.008), a 0.289 higher score on the 6-minute walk score (a measure of aerobic capacity and endurance) (P-value=0.02) and a 0.261 lower score on the 360 turn test (a measure of dynamic balance) (P-value=0.0004). The same was not observed for the relationship between HGA1C & physical indices.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

The Cardiovascular Events in Metabolic Surgery Compared to the New Classes of Glucose-Lowering Agents in Patients With Type 2 Diabetes Mellitus: A Systematic Review With Narrative Synthesis

Najla Mahmood Shamsi, Consultant Family Physician[1], Vinod Patel, PhD[2].
[1]Ministry of Health, Manama, Bahrain, [2]University of Warwick, Coventry, United Kingdom.

Globally, Type 2 Diabetes Mellitus has an immense healthcare burden and associated with increased morbidity and mortality due to macrovascular and microvascular complications. Cardiovascular disease including coronary artery disease and stroke are far more common in T2DM patients. Thus, any intervention that reduces the cardiovascular events in patients with diabetes will have positive impact on the patients and the society. Therefore, this systematic review aimed to evaluate the cardiovascular events after metabolic surgery in comparison with the new classes of glucose lowering agents in patients with T2DM. This review included 11 randomised controlled trials that used GLP-1 RA or SGLT-2 I in comparison to usual standard of care. Seven metabolic surgery studies were included, of which two were randomised controlled trials and the other five were observational studies. These were the most relevant studies to the research question. The results suggest that cardiovascular events are lower in metabolic surgery studies when compared to medication trials. It also suggests that glycated haemoglobin reduction is more in the metabolic surgery group compared to the medication group, although it was not proved to be significant difference between the groups after adjusting the duration. The remission of diabetes was very high in the metabolic surgery group while none of medication trials accomplished diabetes recovery. Additionally, weight loss in metabolic surgery group was significantly higher than medication group after adjusting the duration. However, both medication and surgery groups had adverse events. In conclusion, the review suggests that younger adult obese patients with cardiovascular diseases should undergo metabolic surgery. Whereas, older patients with established cardiovascular disease should be advised to take one of the medications that has been proved to reduce cardiovascular events. Future studies that compare metabolic surgery and the new classes of the glucose lowering agents is recommended to confirm the findings in this review.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

The Effect of Proton Pump Inhibitors on Insulin-Glucose Homeostasis in Patients With Type 2 Diabetes Mellitus

Vipin Verma, MD[1], Mark Cromer, MD[2], Blocker Riddick, MD[3], Jordan M. O'Steen, BS[1], Mc Anto Antony, MD[1], Lakshya Chandra, MD[4], Ravi Kant, MD[1].
[1]Medical University of South Carolina/Anmed Campus, Anderson, SC, USA, [2]University of Alabama Medical Center, Birmingham, AL, USA, [3]Mayo Clinic College of Medicine and Science, Rochester, MN, USA, [4]Bon Secours St Francis Hospital, Greenville, SC, USA.

Introduction: Gastrin release from G cells stimulates cholecystokinin (CCK2) receptors throughout the body, most of which promote gastric acid secretion. However, gastrin also stimulates CCK2 receptors located elsewhere, including the islet of the pancreas. In turn, gastrin increases insulin secretion[1]. Gastrin also promotes pancreatic β cell neogenesis and replication. Proton pump inhibitors (PPIs) decrease the pH of the stomach and stimulate gastrin secretion, which may indirectly promote insulin secretion and improve hemoglobin A1c (HbA1c).
Objective: To understand the effect of PPIs on insulin-glucose homeostasis (c-peptide, HbA1c, and glucose) in patients with type 2 diabetes mellitus (T2DM).
Methodology: We retrospectively reviewed the charts of patients with T2DM at least 18 years of age who received care at AnMed Health facilities from Jan. 1, 2018 through Dec. 31, 2018 to compare HbA1c, C-peptide, and glucose levels in patients with and without active PPI therapy. Slicer-dicer software was used to identify study population with diagnosis of T2DM and labs including both HbA1c and C-peptide. Out of total 215 patients satisfying inclusion criteria, 71 patients were on PPI. Statistical analyses were performed using SPSS version 20.0 (SPSS, Armonk, NY: IBM Corp). All values are presented as means ± SD. A p value of < 0.05 was considered to be significant. Independent T-test and chi-square test were performed to compare parameters in between groups.
Results: The PPI and non-PPI groups had no statistical difference regarding age, sex, race and BMI. There was no significant difference in HbA1c levels between PPI and non-PPI groups (8.6% ± 2.1 vs 8.3% ± 2.0, respectively; p value = 0.37). However, we found a significant increase in C-peptide levels (3.1 ng/mL ± 2.4 vs 2.4 ng/mL ± 2.3; p value = 0.037) and decrease in LDL levels (79.6 mg/dL ± 34.0 vs 89.73 mg/dL ± 32.9; p value = 0.046) in the PPI group compared to non-PPI group. In addition, there was a significantly greater prevalence of coronary artery disease in the PPI group (p = 0.01).
Conclusion: PPI therapy in patients with T2DM was not associated with improved glycemic control. However, C-peptide levels were significantly higher in patients with T2DM who were on PPI therapy suggesting higher insulin secretion. The lack of difference in HbA1c levels may be a result of aggressive diabetic management by treating clinicians to achieve similar goal HbA1c in both groups. Further research is needed to understand the gastrin pathway as a potential option for improving glycemic control.
References: 1. Rehfeld JF. Incretin physiology beyond glucagon-like peptide 1 and glucose-dependent insulinotropic polypeptide: cholecystokinin and gastrin peptides. Acta Physiol (Oxf). 2011 Apr;201(4):405–11.