remission to a non-diabetic state and off antidiabetic drugs. The aim of our study was to investigate the impact of an ad-libitum, low carbohydrate non-ketogenic diet (LCNK) on T2DM control and weight loss of patients reporting to our clinic. Materials and Methods: We reviewed the medical charts of 131 T2DM patients (60% male) who were not receiving insulin; the average number of years with T2DM was 8.4 years, mean age was 52±1.0 years, mean HbA1c was 8.4±0.1%, and mean BMI was 32.7±0.6 kg/m2. We instructed patients on an ad-libitum LCNK diet providing 130 - 150g of carbohydrate/day coupled with combination therapy of Metformin and any of the currently available antidiabetic drugs (except those known to induce weight gain). Those on sulfonylurea or glitazones had their doses tapered down and eventually discontinued. Results: All patients came for a first follow up visit within 3 months of being instructed on the diet. Significant weight loss was observed in these patients (91.5±1.7 vs. 85.6±1.5 Kg, p<0.001); equivalent to a 6% decrease in weight. An A1C level below 6.5% was observed in 60% of our patients who came for a first follow-up visit and it correlated with weight loss. Given that 10% of our population gained weight due to poor adherence to the diet; A1C below 6.5% was achieved in 50% of our 42 patients who lost between 0-5kg, and in 60% of those who lost between 5-10kg (48 patients), and in 63% of those who lost 10-15kg (19 patients), and in 100% of those who lost more than 15kg (4 patients). We observed in them significant decreases in FBS, cholesterol, LDL, TG, and SGPT. Of the 131 patients, 59 came for a second follow-up visit within 7.5 months and an even more significant weight loss was observed (92.0±2.6 vs. 83.8±2.0 Kg, p<0.001); equivalent to a 9% decrease. An A1C level below 6.5% was observed in 63% of patients who came for a second follow-up visit. Given that 14% of the 59 gained weight; A1C below 6.5% was achieved in 42% of our 12 patients who lost between 0-5kg, and in 61% of those who lost between 5-10kg (19 patients), and in 57% of those who lost 10-15kg (8 patients), and in 90% of those who lost more than 15kg (11 patients). Antidiabetic agents were in general progressively decreased and adjusted to individual needs. At the end 27% were only on metformin. Conclusion: A LCNK diet is easy to prescribe and easily followed by T2D patients (no calorie restriction or counting). We recommend its use especially in the primary care setting because it brings diabetes under immediate control by lowering A1C levels below 6.5% in more than 60% of patients as shown by our results, as well as inducing significant weight loss.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

Online CME Successful at Improving Awareness, Understanding, and Clinical Use of T2D Treatments

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We sought to determine if an online continuing medical education (CME) curriculum could improve the clinical knowledge and competence of endocrinologists and primary care physicians (PCPs) related to knowledge and clinical use of GLP-1 RAs. The online CME curriculum consisted of 3 text- or video-based activities focused on practical tips for utilizing GLP-1 RAs in practice, benefits of GLP-1 RAs over therapeutic classes, and knowledge of oral GLP-1 RAs. The educational effects were assessed using a repeated pre-assessment/post-assessment study design. For all questions combined, a chi-squared test assessed whether the mean post-assessment score differed from the mean pre-assessment score (absolute changes reported). P values <.05 are statistically significant. The activities launched between June-August, 2019 and outcomes data were collected through November 2019. After being online and accredited for 1 year, the 3 activities have reached over 15,000 clinicians, over 9,500 of which were physicians. Improved knowledge and competence was demonstrated among the target audiences: • 13% increase in endocrinologists (P<.001) and PCPs (P<.001) who effectively utilized a GLP-1 RA in a practical scenario (competence) • 24% increase in endocrinologists (P<.001) and 21% increase in PCPs (P<.001) who identified the impact of GLP-RA therapy on cardiovascular outcomes (knowledge) • 17% increase in endocrinologists (P<.001) and 14% increase in PCPs (P<.001) who correctly identified cardiovascular impact of an emerging GLP-1 RA (knowledge) Persistent knowledge/competence gaps remain: • 9% of endocrinologists and 38% of PCPs need additional education to improve competence related to clinical use of GLP-1s in practice • 64% of endocrinologists and 62% of PCPs need additional education to improve knowledge on the impact of GLP-1 RAs on cardiovascular outcomes • 64% of endocrinologists and 74% of PCPs need additional education to improve knowledge on the cardiovascular impact of emerging GLP-1 RAs This study demonstrates the success of an online curriculum at improving knowledge and competence of endocrinologists and PCPs related to knowledge and clinical use of GLP-1 RAs. Persistent gaps were identified for future educational targets.
Diabetes Mellitus and Glucose Metabolism

**TYPE 2 DIABETES**

*Patient-Specific Risk Factors and Clinical Correlates of Euglycemic Diabetic Ketoacidosis in Patients on Sodium-Glucose Co-Transporter-2 Inhibitors*

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**Background:** Sodium-Glucose Co-Transporter-2 Inhibitors (SGLT-2i) association with euglycemic diabetic ketoacidosis (EDKA) has been well reported. The underlying mechanism is mainly enhanced lipolysis and ketone bodies reabsorption. They also stimulate the pancreatic alpha cells and inhibit the beta cells, thereby causing an imbalance in glucagon/insulin levels, further contributing to lipolysis and ketogenesis. SGLT-2i were also found to cause EDKA in all types of diabetes, even uncovering undiagnosed Latent Autoimmune Diabetes of the Adult (LADA).

**Methods:** Numerous electronic databases were systematically searched to identify patient-specific risk factors and clinical characteristics of EDKA in patients on SGLT-2i. The patient’s symptoms, clinical profile, laboratory results, and precipitants for EDKA were reviewed.

**Results:** A total of 96 case reports identifying 116 patients with EDKA was fully reviewed. EDKA was twice prevalent in females (66.3%) than males (33.6%); median age was 52.15 ± 13.47, BMI was 29.3 ± 7.0. Among the 116 DKA events in SGLT-2i 92 (79.3%) were associated with Type-2 DM, 15 (12.9%) were Type-1 DM, 8 (6.9%) in LADA. Common symptoms were nausea (48.7%), vomiting (47%), and abdominal pain (28.2%). Canagliflozin was the most common SGLT-2i (40.5%), followed by Empagliflozin (29.3%) and Dapagliflozin (25.9%). The most common precipitant was surgery (17.2%), followed by infection (14.7%), fasting (11.2%), and Keto Diet (9.5%); others being reduced insulin use, alcoholism, and cancer. At presentation, average blood glucose was 196.8 ± 96.5, pH 7.1 ± 0.16, HCO3 8.7 ± 5.7 mmol/L, potassium 4.3 ± 1.03, anion-gap 24.2 ± 6.8 mmol/L, and the average HbA1C was 9.24 ± 2.08. Urine Ketones were positive in 81.89% of patients. 17 patients had pancreatic autoantibodies testing, and 7 were positive (41.2%) for glutamic acid decarboxylase-65 antibodies (anti-GAD-65). As a result, 7 patients were newly diagnosed with LADA who were previously misdiagnosed with type-2 DM.

**Conclusion:** SGLT2i induced EDKA was found to be more predominant in females and type-2 DM. Diabetes should be educated on risk factors and consult physicians before commencing a dietary or exercise change. Physicians should be vigilant in diagnosing EDKA by thoughtful measurement of urine ketones and anti-GAD-65 testing can help diagnose underlying LADA.

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**Diabetes Mellitus and Glucose Metabolism**

**TYPE 2 DIABETES**

*Predictors of the Lack of Annual Fasting Blood Sugar Screening in US Adults*

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**Background:** Diabetes mellitus is a major cause of morbidity and mortality. Many individuals remain undiagnosed. The purpose of this study was to identify predictors of the lack of annual fasting blood sugar (FBS) testing in a representative cohort of U.S. adults.

**Methods:** A total of 257,652 adults ≥18 years from the 2011–2018 National Health Interview Surveys (NHIS) were included. Participants were considered to have had FBS testing if they reported a fasting test for diabetes or high blood sugar in the past 12 months. Predictors of screening utilization were selected using the Anderson Model for Healthcare Utilization, including predisposing (age, sex, race/ethnicity), enabling (smoking, alcohol consumption, physical activity, insurance status, education, citizenship status, region of residence), need (BMI group, comorbidities, cardiovascular disease [CVD]), and healthcare-related factors (doctor visits, satisfactory care, affordability, delayed care). We used diabetes status-stratified multivariable logistic regression with a step-wise selection method to determine the most significant predictors. All analyses accounted for the survey design and weights to obtain nationally representative estimates.

**Results:** Among the 257,652 participants, 115,630 (48%) were male, 27,096 (9.4%) had diabetes, and 141,247 (56%) did not have a FBS test in the past 12 months. Among those with diabetes, 4,529 (16%) did not have a FBS test. Positive predictors of a lack of FBS testing included younger age, male sex, non-Hispanic Black race, ever smoker (≥100 cigarettes per day), and high BMI (≥30 kg/m²). On logistic regression, individuals who did not have an AGP report were 4.3 times more likely to not have a FBS test the past 12 months. Many participants continued educational gaps: • 60% of PCPs and 47% of D/Es failed to identify benefits of an AGP report • 36% of PCPs and 47% of D/Es failed to identify importance of time in range in diabetes management • 13% of PCPs (P<0.05) 3% of D/Es (P=0.05) improved at recognizing target blood glucose levels for time in range • 43% of PCPs and 36% of D/Es had a measurable increase in confidence in ability to explain results from an AGP to patients Continued educational gaps: • 60% of PCPs and 47% of D/Es failed to identify benefits of an AGP report • 35% of PCPs and 12% of D/Es failed to recognize importance of time in range in diabetes management This study demonstrates the success of online 30-minute video panel discussion CME on improving knowledge and confidence of PCPs and D/Es related to CGM and the AGP. Continued gaps were identified for future educational targets.