of treatment is recommended for O-A with T2DM, tight glycemic control and high risk of hypoglycemia. Assessment of all geriatric domains (medical, functional, social and psychological including screening for MCI) is encouraged to support a complete clinical picture that leads to appropriate targets and adequate therapeutic approach. The literature suggests that de-intensification of treatment in this population is uncommon, which calls for the development of new strategies to prevent potential harm, however we also question if previously established tools are being used. **Methods:** We performed a retrospective chart review of a community-dwelling Veterans with at least two office visits in the Geriatric Clinic between January 1st 2018 to December 31st 2019. 210 patients with 65 years of age or older with T2DM and A1C < 7.5 were found. 64 (30%) of the patients where on hypoglycemic medication including sulfonylureas or insulin. From this subgroup, only 9 (14%) patients where recommended to de-intensify therapy. 189 (90%) of all the patients were screened for memory disorders. Interestingly 20 patients (31%) of those using sulfonylureas or insulin as part of their diabetes treatment were not screened, which was a higher percentage compared to 48 (25%) patients not on hypoglycemic medications also not screened for memory disorders. **Conclusion:** similar to previous studies de-intensification is uncommon not only among endocrinologist but in other sub-specialties involved in the care of the Geriatric population. This data emphasizes the importance of using previously developed treatment tools specially in those with at higher risk of overtreatment side effects such as older adults with tight glycemic control and hypoglycemic medication

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS AND COMORBIDITIES

Perfect Timing: Associations Between Dietary Timing, Eating Intervals and Metabolic Health

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Background: Metabolic disorders are on the rise resulting in an increased need for novel interventions to combat this growing concern. One such intervention is time-restricted eating, which consolidates caloric intake to a shortened eating duration, and has consistently demonstrated improvement in metabolic health. Additional interventions could harness circadian clocks, which help regulate daily rhythms of hormone release and maintain metabolic homeostasis. Circadian rhythms are influenced by timing of food intake and therefore meal timing may also impact metabolic health.
Objective: To examine whether timing of eating was associated with metabolic health independently of eating duration.
Methods: Data are from the National Health and Nutrition Examination Survey (NHANES), a nationally representative U.S. survey and physical exam. We analyzed two non-consecutive dietary recalls, fasting glucose and insulin from 10,575 adults (>18) over four cycles (2005–2012). We calculated *eating interval duration* as the time between first and last eating occasion (>10kcal) and formulated three groups: <10h, 10-13h, >13h. We then created 6 subgroups based on eating duration start time (before or after 0830 h) to analyze associations of *eating interval timing*. Linear regression analyses controlling for demographics were computed to determine whether eating interval duration and eating interval timing were associated with fasting glucose and estimated insulin resistance using HOMA-IR.
Results: Fasting glucose did not differ significantly among eating interval groups. Adjusted mean HOMA-IR increased with shorter eating interval duration (2.23, 2.20, 1.97 for <10h, 10-13h, >13h; p<0.05). When eating start time occurred before 0830 h compared to start time after 0830 h, mean adjusted HOMA-IR decreased across all eating interval subgroups (1.96 vs 2.28 for <10h, 2.13 vs 2.28 for 10-13h, 1.94 vs 2.13 for >13h; p <0.05). Adjusted mean fasting glucose had a similar pattern (96.3 mg/dL vs 98.7 mg/dL for <10h, 97.3 mg/dL vs 98.4 mg/dL for 10-13h, and 97.3 mg/dL vs 99.3 mg/dL for >13h; p < 0.05). In regression models where eating duration and timing were both entered as continuous variables, only timing was significantly associated with fasting glucose and HOMA-IR. Later time was associated with higher glucose and HOMA values (p<.001)
Conclusion: Shorter eating durations, i.e. time-restricted eating, was associated with worse metabolic outcomes, except when paired with an earlier start time. All subgroups with an early eating start time had better metabolic outcomes regardless of eating duration. These findings suggest that timing is more strongly associated with metabolic measures than duration and supports early eating strategies.

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS AND COMORBIDITIES

Predicting Major Adverse Cardiovascular Events in Asian Type 2 Diabetes Patients With Lasso-Cox Regression

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Background: South-East Asia has seen a dramatic increase in type 2 diabetes (T2D). Risk prediction models for Major adverse cardiovascular events (MACE) identify patients who may benefit most from intensive prevention strategies. Existing risk prediction models for T2D were developed mainly in Caucasian populations, limiting their generalizability to Asian populations. We developed a

Lasso-Cox regression model to predict the 5-year risk of incident MACE in Asian patients with T2DM using data from the largest diabetes registry in Singapore. **Methodology:** The diabetes registry contained public healthcare data from 9 primary healthcare centers, 4 hospitals and 3 national specialty centers. Data from 120,131 T2D subjects without MACE at baseline, from 2008 to 2018, were used for model development and validation. Patients with less than 5 years of follow-up data were excluded. Lasso-Cox, a semi-parametric variant of the Cox Proportional Hazard Model with l1-regularization, was used to predict individual survival distribution of incident MACE. A total of 69 features within electronic health records, including demographic data, vital signs, laboratory tests, and prescriptions for blood pressure, lipid and glucose-lowering medication were supplied to the model. Regression shrinkage and selection via the lasso method was used to identify variables associated with incident MACE. Identified variables were used to generate individual survival probability curves. Incident MACE was defined as the first occurrence of nonfatal myocardial infarction, nonfatal stroke, and CV disease-related death. **Results:** A total of 12,535 (10.4%) subjects developed MACE between 2008 and 2018. Model performance was evaluated by time-dependent concordance index and Brier score at 1, 2 and 5 years. The results of 5-fold cross validation shows that the model displayed good discrimination, achieving time-dependent C-statistics of 0.746±0.005, 0.742±0.003 and 0.738±0.002 at 1, 2 and 5 years respectively. The model demonstrated low Brier scores of 0.0355±0.0004, 0.0601±0.0011, 0.104±0.004 at 1, 2 and 5 years respectively, indicating good calibration. Factors most predictive of MACE were age and a history of hypertension and hyperlipidemia. **Conclusions:** We have developed a risk prediction model for MACE in Asian T2D using a large Singaporean T2D cohort, which can be used to support clinical decision-making. The individual survival probability estimates achieve an average C-statistics of 0.742 and are well-calibrated at 1, 2 and 5 years.

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS AND COMORBIDITIES

Presentation and Management of Liraglutide-Related Pancreatitis: Systematic Review of Case Reports

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Background: Liraglutide is a glucagon-like peptide-1 (GLP-1 agonist) aimed towards promoting glucose-dependent insulin secretions. This medication is an emerging treatment option for the management of obesity through promoting satiety. However, there are a growing number of cases noting adverse effects of liraglutide. Of note, liraglutide has been seen to elevate serum amylase and lipase levels among users, and therefore promoting acute pancreatitis. Moreover, the overall presentation of liraglutide-related acute pancreatitis can be variable. The aim of this study is to determine qualitative patterns of presentation and meta-analysis of lab changes among acute pancreatitis patients on liraglutide. **Methodology:** Systematic review of the literature was performed on MEDLINE, Google Scholar, and the Cochrane Database of Systematic Reviews for liraglutide-related acute pancreatitis case studies, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and checklist. Meta-Analysis performed using Stata. **Results:** Twenty-one patient cases were identified then contingently evaluated for acute pancreatitis based on presentation, labs, and treatment outcomes. Within the pancreatitis cases, the average age of onset was 59 ± 16.5 (male = 58 ± 24.5; female = 56 ± 24.6). Upon qualitative review, 14.3% of patients were asymptomatic but showed elevated serum amylase and lipase levels following liraglutide administration ($p < 0.05$). Among the symptomatic group, there was variation in the duration of liraglutide administration and reported compliance. There was no significant difference among treatment regimes between symptomatic and asymptomatic groups. **Conclusion:** Longer duration of liraglutide treatment without dose adjustment was notable to show elevated rises in both serum amylase and lipase. However, the variation of patient symptoms cannot be determined through the duration of treatment. Patient demographics do not seem to play a role in acute pancreatitis episodes. Future studies ought to focus on larger patient samples to further develop an understanding of treatment duration, presentation, and management of acute pancreatitis management after liraglutide administration.

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DIABETES COMPLICATIONS AND COMORBIDITIES

Prevalence and Predictors of Hepatic Steatosis Among Adult Population With Prediabetes: Data From NHANES 2017–2018

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Previous studies have examined the prevalence of hepatic steatosis in patients with diabetes but few studies examined the relationship between hepatic steatosis and prediabetes. The purpose of this study was to examine the relationship between hepatic steatosis and prediabetes in a representative sample of the U.S. adult 20 years and older. Data from 5,492 participants in the National Health and Nutrition Examination Survey (NHANES) 2017–2018 were analyzed. Participants were considered normal if they have hemoglobin A1c (HbA1c) <5.7%, have prediabetes if their HbA1c was 5.7% to 6.4% and had diabetes if their HbA1c was > 6.5. Hepatic steatosis was diagnosed using fibroscan. We analyzed the data using descriptive, bivariate Chi square, and multiple logistic regression to determine the association between diabetes status, prediabetes status and hepatic steatosis, adjusting for confounding variables and considering the design and sample weights. Of the 5,492 participants, 8.5% had diabetes and 22.6% had prediabetes. The prevalence of hepatic steatosis was 70%