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

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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

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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.