

MON-590: Presence of Diabetes Diminishes the Ultimate Weight Loss After Bariatric Surgery

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Background: Obesity and diabetes as well as their related complications result in both individual and global health burdens. Among patients who present with both obesity and diabetes, bariatric surgery can lead to remission of both these diseases. However, the possible impact of diabetes on the magnitude of weight loss outcomes after bariatric surgery has not been quantified.

Methods: To address this question, we extracted data from Michigan Bariatric Surgery Cohort (MI-BASiC) to see whether diabetes at baseline could be a predictor of weight loss outcomes. Consecutive patients 18 years of age or older undergoing gastric bypass (GB) or sleeve gastrectomy (SG) for obesity at the University of Michigan between January 2008 and November 2013 were included in our retrospective cohort. All patients had either body mass index (BMI) > 40 kg/m² or BMI 35 – 39.9 kg/m² with comorbid condition. Firstly, we performed Generalized Linear Mixed Model (GLMM) analysis to compare the probability of achieving BMI under 30kg/m² or achieving excess body weight loss (EBWL) 50% or more for patients with or without diabetes. We then further tested the effect of presence of diabetes for the BMI outcomes across time using Linear Mixed Model (LMM) analysis. Finally, we conducted a LMM analysis to determine if diabetes is a predictor of the future weight loss, percentage of total weight loss or percentage of excess weight loss over 5 years of follow up.

Results: Based on our criteria, 380 patients were included for GB [female 305 (80.3%), mean age 43.6±0.6 years, mean BMI 47.3±0.4kg/m², diabetes 149 (39.2%), on insulin 45 (11.8%)] and 334 for SG [female 259 (77.5%), mean age 45.3±0.6 years, mean BMI 49.9±0.5kg/m², diabetes 108 (32.3%), on insulin 29(8.7%)]. From GLMM analysis, the presence of diabetes at baseline did not impact the probability of achieving BMI under 30kg/m² (p=0.0848), but substantially impacted the probability of achieving 50% or more EBWL (p=0.0021) with individuals without diabetes having a 1.6 (odds ratio 1.56, 95% CL [1.18-2.08]) times higher chance to achieve this threshold. We also showed that individuals with diabetes at baseline had a significant effect to modify BMI points lost, regardless of the surgery type (p=0.0178). The presence of diabetes at baseline diminished weight loss by 1.2 BMI points (95% CL [0.21- 2.20]) which is roughly 10 to 15% of the total BMI points to be lost. LMM analysis further confirmed that after adjusting the time, surgery type, age, gender and baseline weight, there was still a significant difference of absolute weight loss (p=0.0110), percentage of total weight loss (p=0.0089) and percentage of excess weight loss (p=0.0365) between individuals with diabetes versus individuals without diabetes.

Conclusion: In conclusion, our data demonstrate that diabetes diminishes the ultimate weight loss effect of bariatric surgery. Further research is needed to understand why this is the case.