

## **Bariatric Surgery and Diabetes: Implications of Type 1 Versus Insulin Requiring Type 2**

Program: Abstracts - Orals, Poster Preview Presentations, and Posters  
Session: MON 0947-1010-Diabetes Clinical Care; Genetics & Epidemiology  
Clinical  
Monday, June 23, 2014: 1:00 PM-3:00 PM  
Hall F (McCormick Place West Building)

Poster Board MON-0991



### **Helmsley Charitable Trust Abstract Awards in Type 1 Diabetes**

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**Background:** Bariatric surgery has been shown to significantly improve obesity related co-morbidities such as type 2 diabetes, hypertension, and hyperlipidemia. Congruent to the overall increase in prevalence of obesity, increasingly patients with type 1 diabetes (DM1) are obese and experience weight related co-morbidities and insulin resistance. Data is limited regarding differences in the impact of bariatric surgery on metabolic outcomes in patients with DM1 versus insulin requiring type 2 diabetes (IRDM2).

**Methods:** Bariatric surgery database was analyzed for subjects with insulin requiring diabetes undergoing primary bariatric surgery after 2008 with additional information obtained from review of medical records. Subjects with DM1 were compared with IRDM2 at baseline and 1 year post-surgery for: anthropometric measures, obesity related co-morbidities; HbA1c, daily insulin requirements, and number of medications (diabetes, anti-hypertensive, lipid lowering).

**Results:** Ten subjects with DM1 and 99 subjects with IRDM2 underwent primary bariatric surgery. At the time of surgery, there was no difference between DM1 and IRDM2 groups in age ( $50.6 \pm 8.8$  vs.  $54.7 \pm 10.3$  yr), BMI ( $44.3 \pm 8.0$  vs.  $46.5 \pm 9.1$  kg/m<sup>2</sup>), and HbA1c ( $8.2 \pm 1.6$  vs.  $7.8 \pm 1.3$  %) respectively. Subjects with DM1 had longer duration of diabetes ( $20.6 \pm 11.4$  vs.  $12.4 \pm 7.5$  yr), required less insulin ( $68.0 \pm 37.4$  vs.  $122.8 \pm 83.60$  units), and used less diabetes medications ( $1.6 \pm 0.5$  vs.  $2.5 \pm 0.8$ ) than IRDM2 subjects respectively. Both DM1 and IRDM2 groups lost similar amount of weight 1 year after bariatric surgery ( $37.4 \pm 12.0$  vs.  $37.4 \pm 18.4$  kg). IRDM2 subjects had significant decrease in insulin use (pre-  $122.8 \pm 83.6$  vs. post-  $11.6 \pm 26.7$  units p-value  $<0.0001$ ), diabetes medications ( $2.5 \pm 0.8$  vs.  $0.7 \pm 0.8$  p-value  $<0.0001$ ), anti-hypertensive medications ( $2.2 \pm 1.3$  vs.  $1.2 \pm 1.1$  p-value  $<0.0001$ ), lipid lowering medications ( $1.1 \pm 0.8$  vs.  $0.6 \pm 0.6$  p-value  $<0.0001$ ) and had a significant improvement in their HbA1c ( $7.8 \pm 1.3$  vs.  $6.6 \pm 1.3$  % p-value  $<0.0001$ ). DM1 subjects had lower insulin requirements ( $68.0 \pm 37.4$  vs.  $35.7 \pm 14.4$  units p-value 0.03), but did not show improvement in the number of medications used for diabetes ( $1.6 \pm 0.5$  vs.  $1.8 \pm 0.7$ ) or HbA1c ( $8.2 \pm 1.6$  vs.  $8.3 \pm 1.3$  %). Their use of lipid lowering medications improved ( $1.0 \pm 0.5$  vs.  $0.6 \pm 0.7$  p-value 0.04) but there was no change in number of anti-hypertensive medications ( $2.1 \pm 1.4$  vs.  $2.2 \pm 1.6$ ).

**Conclusion:** To our knowledge, this is the largest cohort reporting metabolic outcomes of patients with DM1 who have undergone bariatric surgery. Our study found a decrease in insulin requirements, however no benefit in glycemic control as determined by HbA1c. The only decrease observed in medications used was in lipid lowering medications. Additional investigation is warranted; however improved glycemic control may not be an expected outcome when considering bariatric surgery in patients with DM1.

Nothing to Disclose: SM, YCK, TAK, MLC, MM