A5000

Peri-operative Outcomes of End Stage Renal Disease Patients Undergoing Laparoscopic Roux-en-Y Gastric Bypass

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Background: End Stage Renal Disease (ESRD) is a growing chronic health issue in the U.S. Many of these patients also struggle with obesity. Increasing obesity has been shown to worsen the outcomes in renal transplant patients and can also limit access to transplantation. This has led some of these patients to pursue pre-transplant surgical weight loss. We sought to evaluate peri-operative outcomes in ESRD patients undergoing Laparoscopic Roux-en-Y Gastric Bypass (LRYGB).
Methods: The Nationwide Inpatient Sample (NIS) Database was queried for the years 2005 to 2010 for LRYGB operations performed on patients with and without ESRD. The patients' age and comorbid conditions were evaluated. Multivariate logistic regression was then performed to assess predictive risk factors for in-hospital morbidity and mortality.
Results: A total of 366,098 patients undergoing LRYGB were identified, of which 306 (0.1%) had ESRD. When comparing the ESRD cohort to the non-ESRD cohort, the ESRD cohort was older (47 + 8.3 vs. 43.7 + 11.2, $p < 0.0001$). A higher percentage of males was seen in the ESRD cohort (43.5% vs. 19.4%, $p < 0.0001$). There was a higher prevalence of DM (75% vs. 34%, $p < 0.0001$) and sleep apnea (43% vs. 24%, $p < 0.0001$). Multivariate analysis revealed that ESRD is an independent predictor of post-operative hemorrhage (OR 3, $p = .003$). The length of stay was significantly longer for the ESRD group (4.1 + 3.3 vs. 2.4 + 3, $p < 0.0001$). However, ESRD was not a significant predictor of post-operative morbidity or mortality.
Conclusions: ESRD patients composed a small percentage of the bariatric surgical population. Despite increased age and associated comorbidities, ESRD did not confer an increased overall morbidity or mortality after LRYGB. There was an increased risk of bleeding and an extended length of stay; these were not unexpected findings. With appropriate counseling, risk stratification and clinical management, patients with ESRD may safely undergo weight loss surgery with acceptable peri-operative outcomes.

A5001

The time to weight-loss steady state after gastric bypass predicts long-term weight loss success.

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Background: While the effect of pre-operative patient characteristics on long-term weight loss outcomes after laparoscopic roux-en-y gastric bypass (LRYGB) has been robustly studied, the individual patterns of weight loss post-operatively and subsequent effect on long-term success has been relatively unexplored. We sought to determine the patterns of individual weight loss and the effect these early patterns have on long-term success by using a novel method of measurement based on the time to post-operative weight loss steady-state (SS). We hypothesized that the longer the adaptation period and time to SS, the greater the weight loss.
Methods: An electronic bariatric database was retrospectively reviewed for patients who underwent LRYGB as a primary bariatric procedure from 01/2001-12/2010 at a single institution. Patients were included if follow-up weights were available at 6 months, 9 months, 12 months, 18 months or 2 years, and 3 or 4 years post-operatively. SS was defined as the post-operative month when the patient had ≤3% excess weight-loss (EWL) or a weight gain during the next 12 months. Patients were then stratified into groups by similar time to SS and compared by EWL at SS (S-EWL) and EWL at last known follow-up (F-EWL).
Results: 178 patients met follow-up criteria for

inclusion with an average age of 43.7 years and pre-operative weight of 133.5 kg. Average follow-up was 5.6 years. The average time to SS for all patients was 15.5 months post-operatively. Only 7.9% of patients lost more than 3% EWL long-term once achieving their initial SS weight. One patient reached SS by 3 months (S-EWL: 44.0%, F-EWL: 4.0%). 14 patients achieved SS at 6 months (S-EWL: 46.6 ± 11.2%, F-EWL: 34.6 ± 18.4%), 32 patients at 9 months (S-EWL: 55.0 ± 13.9%, F-EWL: 45.5 ± 18.2%), 56 patients at 12 months (S-EWL: 71.6 ± 14.4%, F-EWL: 55.8 ± 19.9%), 39 patients at 18 months (S-EWL: 79.7 ± 16.6%, F-EWL: 63.5 ± 20.2%), 25 patients at 2 years (S-EWL: 75.9 ± 20.3%, F-EWL: 62.7 ± 25.7%), 10 patients at 3 years (S-EWL: 81.2 ± 13.7%, F-EWL: 64.0 ± 28.5%), and 1 patient at 4 years post-operatively (S-EWL: 106.9%, F-EWL: 72.9%). Patients with a time to SS of <12 months had a significantly lower S-EWL and F-EWL compared to SS achieved at 18 months or later ($p<0.01$). **Conclusions:** Few patients achieve meaningful weight-loss after SS. The time to SS varies significantly among patients. Further studies are needed to explore what mechanisms dictate the time to SS such as patient physiology, patient behavior, and surgical technique. Achievement of SS within the first year after surgery is associated with significantly lower S-EWL and F-EWL. These finding support the close follow-up of patients for the first 18 months to identify patients at risk for rapid physiologic adaptation with resultant unsatisfactory weight-loss outcomes. Prospective studies are needed to determine if behavioral or surgical interventions early during the SS period can improve F-EWL.

A5002

Outcomes of Roux-en-Y Gastric Bypass in Super Obese Patients : Comparison between BMI 55-65kg/m2 and ≥65kg/m2

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Background: The ideal bariatric procedure for super obese patients (body mass index (BMI) ≥ 50 kg/m2) has been debated among surgeons. Reports on the outcomes of Roux-en-Y gastric bypass (RYGB) in the super obese population are scarce, not to mention those of patients with BMI higher than 65kg/m2. The aim of our study is to evaluate and compare the safety and efficacy of RYGB in super obese patients, by comparing patients with BMI 55-65kg/m2 to those with BMI ≥65kg/m2. **Methods:** Between January 2004 and November 2013, a total of 2,717 patients underwent RYGB at our institution. Of these patients, 375 (13.8%) had preoperative BMI between 55-65kg/m2 and 98 (3.6%) had BMI ≥65kg/m2.A retrospective review was performed in these patients, noting the outcomes and complications of the procedure. **Results:** Patients with BMI 55-65kg/m2 were younger at a mean age of 38.6±10.2 kg/m2 (range 19-61) as patients with BMI ≥65kg/m2 showed a mean age of 41.8±10.6 kg/m2 (range 19-64) ($p<0.01$) at the time of RYGB. One (1.0%) mortality occurred in the BMI ≥65kg/m2 group. Fifteen (15.3%) patients required more than one readmission in the BMI ≥65kg/m2 group, while 30 (2.7%) did in the BMI 55-65kg/m2 group. Eight (8.2%) patients in the BMI ≥65kg/m2 group required a total of 11 reoperations, and 12 (3.2%) patients in the BMI 55-65kg/m2 group underwent a total of 13 reoperations. Readmission ($p<0.01$) and reoperation ($p<0.03$) rates were significantly lower in the BMI 55-65kg/m2 group. Reasons for readmissions included abdominal pain (n=6), nausea/vomiting (n=4), hematemesis (n=2), pleural effusion (n=2), and rectal bleeding (n=1) in the BMI ≥65kg/m2 group. Reasons for reoperations were small bowel obstruction (n=2), extensive adhesions (n=2), gastric outlet obstruction (n=1), gastro-gastric fistula (n=1), jejuno-jejunal anastomotic leak (n=1), and neuroglycopenia (n=1) in this group of patients. At a mean follow-up period of 20.2±19.5 months (range, 1-114), the mean percentage of excess weight loss (%EWL) was 44.8±18.9% (range, 2.6-87.8) in the BMI ≥65kg/m2 group, and 46.1±20.15 (range, 0.1-99.9) in the BMI 55-65kg/m2 group. The difference in weight loss was not statistically significant ($p>0.55$). **Conclusions:** RYGB showed similar weight loss in patients with BMI 55-65kg/m2 and BMI ≥65kg/m2. However, readmission and reoperation rates were significantly higher in the BMI ≥65kg/m2 group.

A5003

Practice Patterns and Role of Medical Education Related to Bariatric Surgery

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Background: Obesity is a major public health crisis. In the past 10 years, the prevalence of obesity in the United States has increased from 20.0% to 35.7%.[CDC 2012; Ogden 2012] The prevalence of class II and III obesity (BMI >35) is 21.8%.[Flegal 2012]Despite recognition as a disease, bariatric surgery for obesity remains underutilized, with only 1% of eligible patients receiving surgical treatment.[Martin 2010] This study's objective was to assess current knowledge and practice gaps of physicians related to referral for bariatric surgery and their relationship with participation in certified medical education (CME).
Methods: An educational needs assessment survey instrument was developed consisting of 16 survey items. These included demographic, knowledge-, and practice-based, questions regarding bariatric surgery. Self-reported responses were captured using Likert scale ratings or multiple-choice items. It was posted online to healthcare providers without monetary compensation. Confidentiality of survey respondents was maintained and responses were de-identified and aggregated prior to analyses. The survey launched on February 27, 2014 and participant responses were collected over the following 6 weeks. An unpaired t-test was used to assess the difference in means for select questions. P-values <0.05 were considered to be statistically significant.
Results: Of 234 physician respondents, 47% see >10 moderately to severely obese (BMI >35) patients weekly. However, 48% of respondents do not consider referring any for bariatric surgery, 36% consider referring 1-2 patients per week, and 16% consider referring >3 patients per week. Nearly 80% reported referring <10 patients for bariatric surgery in the past year. Forty percent of respondents reported that they participated in bariatric surgery-related CME within the past year (13% in the past 3 months, 5% in the past 6 months and 23% in the past 12 months). Of the 60% who had not participated in CME in the past year, 8% said CME was not important and 92% had not seen any CME on this topic. When asked about self-reported knowledge of bariatric surgery, 13% selected very knowledgeable, 25% knowledgeable, 39% somewhat knowledgeable, 16% slightly knowledgeable, and 8% not at all knowledgeable. There was a correlation between self-reported referral rates for bariatric surgery and self-reported knowledge about bariatric surgery ($P < 0.0001$). There was also a correlation between more recent participation in CME on the role of bariatric surgery in obesity treatment and self-reported knowledge ($P < 0.0001$), as well as self-reported referral rates ($P < 0.0001$).
Conclusions: This assessment of physicians' knowledge and clinical practices identified gaps in bariatric surgery referral for moderately to severely obese (BMI >35) patients that was linked to low self-reported knowledge. Participation in bariatric surgery-related CME was shown to improve physician self-reported knowledge and referral for eligible patients. Data from this study can be used to inform the design of focused educational interventions to improve patient care.

A5004
Outcomes of Bariatric Surgery in Diabetic Patients with Diminished Pancreatic Secretory Reserve
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Background: Although the marked and durable effects of bariatric surgery on early type 2 diabetes (DM) is known, there is limited data on the impact of surgery in patients with reduced beta-cell function/reserve.
Methods: Clinical outcomes of 22 poorly controlled diabetic patients who underwent laparoscopic bariatric surgery in a 10-year period and had a fasting serum c-peptide ≤0.5 ng/mL were assessed.
Results: Patients had type 1 (n=9), type 1.5 (n=1), and prolonged type 2 (n=12) DM, a mean age of 49.0±9.1 years, a median duration of DM of 20 years, and a median of 7 obesity- or DM-related comorbidities. All patients were on insulin before surgery. Surgical procedures included gastric bypass (n=14), sleeve (n=6), and banding (n=2) without any intraoperative complication. In total, 8 patients (36.4%) developed postoperative complications including DKA (n=3) and DVT (n=3). At a mean follow up of 40.8±27.5 months, a mean percent excess weight loss of 67.9±20.4% was associated with

a significant change in A1C, daily insulin requirement, and lipid profile (table 1). At the last follow-up point, three patients (13.6%) were off insulin, three patients had A1C <7%, and one patient had remission of DM. Hypertension improved in 50% of patient. **Conclusions:** In conclusion, bariatric surgery can result in improvement of glycemic status and comorbid conditions of obese diabetic patients with diminished beta-cell reserve and may facilitate medical management of DM.

A5005

The Influence of Selenium on Weight Loss and Diabetes Remission After Bariatric Surgery

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Background: Bariatric surgery for morbid obesity often leads to resolution of type 2 diabetes (DM2). While the mechanisms of diabetes remission is in active investigation, selenium may play a role in resolution of DM2 after weight loss surgery. Observational and prospective data suggests that increased selenium levels are positively correlated with an increased incidence of DM2. However, little evidence exists as to the role of selenium in DM2 remission after bariatric surgery. The aim of this study is to evaluate the role of selenium in the resolution of DM2 and improved glycemic control after bariatric surgery. **Methods:** 222 bariatric patients were included in this retrospective analysis. Demographic data was obtained, and BMI, percent excess weight loss (%EWL), and selenium were collected preoperatively, and 3-, 6-, and 12-months postoperatively. HbA1C, fasting glucose, fasting insulin, HDL cholesterol, triglycerides and high sensitivity C-reactive protein (CRP) were also collected at all preoperative and postoperative time points. Resolution of Diabetes Mellitus 2 (DM2) was determined based on ADA criteria (complete HbA1C < 6.0 or FG < 100 and partial HbA1C < 6.5 or FG < 125). Student T-test and correlation analysis were used as appropriate. All analysis was performed using GraphPad Prism 6. **Results:** Patients had an average age of 46.8 years, 76.6% were female, 49.5% were white, and had an average preoperative BMI of 45.1 kg/m2. Average total number of preoperative comorbidities was 3.9, with 27.4% of patients considered diabetic. In the entire population, no significant differences were found in serum selenium levels at any time point (preop 140.5, 3mos 133.9, 6mos 131.9, 12mos 138.7 mcg/L, p=0.329). Correlation analysis revealed 12-month selenium levels to be positively correlated to 3-month insulin levels (r=0.424, p=0.005). Significant positive correlations were found between 3-month serum selenium levels and 6-month HbA1C (r=0.446, p=0.002), 6-month FG (r= 0.573, p<0.001), and 6-month %EWL (r=0.294, p=0.043). 3-month selenium was negatively correlated with 6-month BMI (r-0.298, p=0.040). Patients who were considered diabetic preoperatively had significantly higher levels of serum selenium 6-months postoperatively compared to non-diabetics (DM2 144 vs. No DM2 126 mcg/L, p=0.038). Additionally, those patients with 12-month diabetes resolution had significantly lower levels selenium at 6-months (Resolution 127 vs. No Resolution 177 mcg/L, p=0.017) and 12-months (Resolution 146 vs. No Resolution 206 mcg/L, p=0.031) when compared to patients who did not experience DM2 resolution at 12-months postoperative. **Conclusions:** Following bariatric surgery, higher levels of serum selenium were correlated with increased levels HbA1C, fasting glucose, and fasting insulin. When analyzed by DM2 status, diabetic patients had higher postoperative levels of selenium. Additionally, those patients who did not experience resolution of diabetes at 12-months postoperative, had higher postoperative levels of selenium. Higher postoperative serum selenium levels and supra-supplementation of selenium may decrease resolution rates of type 2 diabetes in bariatric patients. Special attention should be paid to the amount of selenium supplement given to bariatric patients, especially if diabetic, as current supplements for bariatric patients exceed the daily recommended amount of selenium.

A5006

Comparing the Outcomes of Pain Management Strategies in Bariatric Surgery Patients

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Background: Bariatric surgery can be a life-changing event for patients, however recent evidence suggests that the weight loss from these procedures is not associated with a decrease in chronic opioid use. Opioid analgesics are commonly employed for post-surgical pain management, but these medications are wrought with side effects, and lead to significant morbidity and mortality. In an effort to identify strategies for reducing opioid exposures, we sought to compare the outcomes of bariatric surgery patients whose surgical pain was initially managed with liposomal bupivacaine compared to standard care in the US hospital setting.
Methods: We performed a retrospective cohort study using patients (>=18 years, who underwent elective bariatric surgery) from the Premier Inpatient Hospitalization Database from January 2013 through June 2013. We estimated generalized linear models adjusting for age, race and insurer/payer to assess differences in total hospitalization costs (gamma log-link model), length of stay (negative binomial model), post-operative opioid use (gamma log-link model), and rates of adverse events (binomial complementary log-log link model) comparing patients who received intraoperative liposomal bupivacaine with patients who received standard care. We computed Average Treatment Effects (ATE) for each outcome using the method of recycled predictions.
Results: The study cohort included 7299 patients with 188 (2.58%) being administered liposomal bupivacaine during surgery. Patients in the liposomal bupivacaine group were on average younger (45.26 v 43.64, $p = 0.007$). A significantly higher proportion of non-white people received liposomal bupivacaine (3.67% v 1.95%, $p < 0.001$), as did a significantly higher proportion of managed care patient (3.45% v 0.89%, $p < 0.001$). There were no differences by gender (2.92% female v 2.47%, $p = 0.313$). Averaging over the distribution of age, race and insurer/payer, patients who were injected with liposomal bupivacaine had $1978 lower total hospitalization costs (95% CI: $1122 to $2835). There was no difference in length of stay (ATE: -0.004, 95% CI: -0.209 to 0.200). Predicted mean morphine equivalent dose consumption was 10.80 mg (95% CI: 2.60, 19.00) lower in the liposomal bupivacaine group. The probability of respiratory adverse events was 0.136 (95% CI: 0.037, 0.235) lower in patients on liposomal bupivacaine, while probabilities of bowel obstruction, surgical site infection and urinary tract infection were similar between the two groups.
Conclusions: Intra-operative injection of liposomal bupivacaine for the management of post-surgical pain among adults undergoing bariatric surgery appears to be associated with lower total hospitalization costs and decreased rates of respiratory adverse events. More research is needed to optimize the use of this medication in this at risk population, including focusing on patients with sleep apnea and pre-surgical continuous positive airway pressure therapy.

A5007

Predicting Sub-Optimal Weight Loss One Year after a Roux-en-Y Gastric Bypass with the Minnesota Multiphasic Personality Inventory – 2 – Restructured Form (MMPI-2-RF)

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Background: The Roux-en-Y Gastric Bypass (RYGB) procedure demonstrates good efficacy and effectiveness for weight loss among bariatric surgery candidates; however, some patients do not achieve their weight loss goals. Many bariatric surgery candidates undergo a Presurgical Psychological Screening (PPS), which includes objective psychometric testing. Recent literature suggests that the Minnesota Multiphasic Personality Inventory – 2 – Restructured Form (MMPI-2-RF), an objective psychological/personality assessment instrument, demonstrates good reliability, validity, clinical utility, and generalizability across bariatric surgery candidate samples. The current study seeks to extend past literature on the MMPI-2-RF by examining which pre-surgical scale elevations on the instrument can predict suboptimal weight loss one year post-surgery.
Methods: The sample consisted of 345 bariatric surgery candidates who produced a valid presurgical MMPI-2-RF protocol, underwent a RYGB, and had one-year weight loss data. The majority of the sample were women (76.2%). Ethnic breakdowns were as follows: 64.7% were Caucasian, 20.4% were African American, and 14.9% were of another ethnicity. The mean age

of the sample was 46.7 (SD = 11.5). The mean presurgical BMI was 47.2 kg/m2 (SD = 8.8), and the mean %Excess Weight Loss (%EWL) at one year postoperative was 59.5% (SD = 19.6). **Results:** Following convention, 98 individuals (28.4%) who did not meet 50% EWL at 12 months postoperative were classified as achieving sub-optimal weight loss. To examine the increase in risk for achieving sub-optimal weight loss at the one year postoperative time point, we calculated relative risk ratios (RRRs) using various pre-surgical MMPI-2-RF cutoffs. Several scales demonstrated statistically significant RRRs. For example, bariatric surgery candidates who scored at or above 65T on the Behavioral/Externalizing Dysfunction scale (a broad measure indicating difficulties with under-controlled behaviors such as substance abuse and impulsivity) at their presurgical evaluation were at a 2.06 (95% CI = 1.06 – 3.99) greater risk for achieving sub-optimal weight loss than those who scored below 65T on the Behavioral/Externalizing Dysfunction scale. Candidates who scored at 60T or above on the Aggression scale were at a 1.95 (95% CI = 1.21 – 3.16) greater risk for achieving sub-optimal weight loss than those who did scored below 60T or above on the Aggression scale. **Conclusions:** Patients who score at 65T or higher on Behavioral/Externalizing Dysfunction and 60T or higher on Aggression of the MMPI-2-RF at the time of their presurgical evaluation are at greater risk of achieving sub-optimal weight loss one year following RYGB. Thus, patients who at the time of their presurgical screening report a broad range of behaviors and difficulties associated with under-controlled behavior (e.g., substance abuse, poor impulse control) and physically aggressive behavior are at greater risk for sub-optimal weight loss following RYGB. Inadequate self-control should be the focus of intervention for these patients. Several other statistically significant RRR findings emerged and will be discussed.

A5008

Concomitant Removal of Gastric Band and Gastric Bypass: Analysis of Outcomes and Complications from the ACS-NSQIP Database.

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Background: Objectives: To compare mortality and morbidity of Laparoscopic Roux-en-Y gastric bypass (LRYGB) versus LRYGB with concomitant gastric band removal (LRYGBP/GBR).BackgroundSince the approval of adjustable gastric banding in the US, a significant number of patients have undergone this procedure with substantial long term failure rates. Conversion of band to RYGB is an established procedure. However, multiple reports have indicated higher morbidity and mortality rates associated with this operation, especially when performed as a single staged procedure.

Methods: Data from The American College of Surgeons' National Surgical Quality Improvement Program (ACS-NSQIP) database (a prospective validated outcomes registry) was obtained for the time period of 2008 to 2012 using CPT codes for LRYGB and LGBR. Demographics, preoperative comorbidities and postoperative mortality and morbidity data were retrieved. Sepsis was the primary outcome measure with overall morbidity as a secondary outcome. Bivariate and multivariate analyses were carried out using SAS (Statistical Analysis System).

Results: During the study period, 46,851 (98.5%) patients had LRYGB and 711 (1.5%) had LRYGB/GBR for a total of 47,562 patients analyzed. On bivariate analyses, mean operative time was lower for patients undergoing LRYGB rather than LRYGB/GBR (134.4 ± 56.5 vs 180.13 ± 72.4 min, $p < 0.001$). There was no statistically significant difference in the rate of postoperative mortality (0.16% vs 0.14, $p > 0.999$), sepsis (0.83% vs 0.84%, $p = 0.963$) or other postoperative outcomes such as return to the operating room, wound infection, and venous thromboembolism. The odds ratio (OR) for sepsis remained not significant (OR = 0.81; CI = [0.35-1.84]) after multivariate analysis. **Conclusions:** Laparoscopic Roux-en-Y Gastric Bypass with concomitant Gastric Band Removal (LRYGBP/GBR) is not associated with a higher morbidity and mortality compared to Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) alone. The data implies that a one-step revisional procedure is appropriate when converting a failed gastric band to a RYGB.

A5009

*** Presentation under consideration for the John Halverson Young Investigator Award**

Goal Directed Program after Sleeve Gastrectomy Improves Weight Loss

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National University Hospital, Singapore[1] National University of Singapore[2] Khoo Teck Puat Hospital, Singapore[3] Tan Tock Seng Hospital, Singapore[4]

Background: Laparoscopic sleeve gastrectomy is gaining popularity in recent years, with many recent studies showing good efficacy and acceptable complication rates. No study to date has looked into the role of a standardized, goal directed, weight loss program and its effect on weight loss in patients who have undergone bariatric surgery. The aim of our study is to determine if a goal directed weight loss program improves weight loss after sleeve gastrectomy.
Methods: We compare patients who underwent laparoscopic sleeve gastrectomy in three bariatric centers from April 2010 to July 2013, of which one center utilizes a standardized weight loss program with targeted weight loss goals to strive towards. Excess weight loss (EWL) results from this center were compared with the other two centers that implement a standard weight loss program without goal directed protocols. Two-sample t-test was used to compare the EWL between the groups. To model the longitudinal EWL profile, the generalized estimating equations (GEEs) approach to fit the linear regression was used to account for the correlation over time.
Results: A total of 211 patients were studied with 129 patients who followed the goal directed weight loss program. There was no statistical difference between both groups when comparing variables such as sex, ethnicity, pre-operative comorbidities, age, height and pre-operative weight/excess weight/body mass index. At 3, 6, 9 and 12 months post-sleeve gastrectomy, patients in the goal directed program achieved mean EWL of 40%, 54%, 62% and 67% respectively when compared to 36%, 50%, 54% and 55% respectively among patients not in the goal directed program. These results reached statistical significance (P <0.05) at 12th months. Using the GEE, we found the interaction between goal directed program status and months to be significant (P=0.003). The difference in mean of EWL (%) between patients with goal directed program and those without were 5.21 (95%CI: -1.33 to 9.09), 3.98 (95%CI: -1.14 to 9.09), 5.45 (95%CI: -0.10 to 11.00) and 9.43 (95%CI: 3.82 to 15.03) at 3, 6, 9 and 12 months respectively. The difference in the estimated marginal mean of EWL between patients with goal directed program (55.7; 95%CI: 52.8 to 58.5) and those without (49.7; 95%CI: 46.1 to 53.3) was also significant (6.02; 95%CI: 1.43 to 10.6).
Conclusions: Our results suggest that the use of a standardized goal directed weight loss protocol for patients who have undergone laparoscopic sleeve gastrectomy improves weight loss outcomes in the short to mid-term period.

A5010

Does sleeve gastrectomy hinder growth in children?

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Background: Bariatric surgery is the most successful method of inducing rapid, sustained weight loss with resolution of comorbidities. However, offering bariatric surgery to severely obese children is met with considerable reluctance. Concerns are raised, as the scientific community wonders whether bariatric surgery may have a harmful effect on growth. Different methods exist to assess child growth, of which height z-score is a highly sensitive and reproducible method.
Methods: After previously reporting on the success of laparoscopic sleeve gastrectomy in inducing significant and sustained weight loss with resolution of comorbidities, we extracted one-year and two-year height change data (height, height z-score and height z-score difference). We then divided the cohort into four groups: (1) young children: aged 5 to 8.99 years, (2) prepubertal children: aged 9 to 12.99 years, (3) teenagers: aged 13 to 16.99 years, (4) young adults: aged 17 to 21 years.
Results: One year after LSG, the height z-score had changed by an average of -0.06 + 0.56, -0.04 + 0.32, -0.06 + 0.38 and 0.09 + 0.33 for groups (1), (2), (3), and (4) respectively. Two years after LSG, the height z-score had changed by an average of 0.14 + 0.53, 0.08 + 0.78, 0.08

+ 0.61 and 0.03 + 0.35 for those groups. The mean BMI change observed at two years of follow-up ranged between -14.2 to -23.4 for all age groups (Table 1). No significant difference was observed regarding height z-score change between the four groups.
Conclusions: Contrary to current concerns, children who undergo LSG at any age experience normal height gain, suggesting no effect of the procedure on growth and skeletal maturity.

A5011
Impact of Different Mechanical Stapling Platforms in Vertical Sleeve Gastrectomy (VSG)
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Background: Although the mechanical endoscopic stapler is the sentinel instrument in VSG, there has been little investigation regarding the impact on outcomes of the two different commercial platforms. Each device has different mechanisms for staple deployment. One system uses graduated compression (GC) by deploying staples of different heights. The smallest being placed first and near the cut line, and then progressively deploying larger height staples away from the cut line thereby reducing tissue stress on the outer row. The other uses constant compression (CC) deploying three lines of the same height simultaneously. The purpose of this investigation is to determine whether these differences change early clinical outcomes
Methods: All inpatient discharges for sleeve gastrectomy (ICD-9-CM procedure code 43.82) for all live discharges, for all patients 18 +, and excluding cases were buttress material were selected from a comprehensive hospital admission database (Premier Perspective Database 1/1/12 through 6/30/13). 437 cases that utilized GC and 2457 CC were found and analyzed. Descriptive statistics were calculated for patient demographic and hospital characteristics. Comparison of patient demographic and hospital characteristics was performed using 2-sided chi-square or Fisher Exact test for categorical variables and t-tests for continuous variables. Propensity Score methodology was used to match patients (1:1) in the GC group to CC group using age, gender, Charlson Comorbid Index (CCI), APR-DRG severity of illness, insurance type, discharge status, hospital's region, teaching status and bed size. 430 of the GC group patients were matched to 430 of the CC group.
Results: Mean age of the groups was similar 42.6 GC vs 43.8 CC. CC patients had a higher CCI (.48 GC vs .61 CC p=.002) and higher number of patients labeled with severe illness. GC was more likely to be used in southern hospitals, as well is in larger facilities p<.0001. With unadjusted outcomes there was no difference in leaks, GC patients had lower risk of blood transfusion (.46% vs 1.55% p=.0492), GC patients had lower rate of ICU admission (.22 % vs 1.99% p=<.001). Following matching of patients to eliminate population difference there was still a tendency for GC patients to have a lower risk of blood transfusion (.47% vs 1.63% p=.0617). The difference in ICU admission became less pronounced (.23% vs 1.4% p=.0817).
Conclusions: Although critical to the success of the procedure, there has been little investigation regarding the potential impact that the different stapling platforms can have with clinical outcomes. To ascertain any difference requires a large sample and query of data base with access to multiple hospitals. While there are obvious limitations such as being dependent on the accuracy of what is reported, inability to account for variables such as oversewing and bougie size , our results suggest a tendency for GC to be associated with a lower rate of blood transfusion. This tendency remains even after matching patients by propensity score. The potential importance of these results may be amplified by the increasing recognition that early bleeding may be associated with an increased chance for leakage.

A5012
Bariatric surgery in transplant patients
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UNIVERSITY OF ILLINOIS AT CHICAGO[1] UNIVERSTITY OF ILLINOIS AT CHICAG[2]

Background: Obesity is a particular problem in patients undergoing organ transplantation. Reports show almost one third of transplant patients become obese within 3 years after a liver transplant. In the United States alone, 7% of patients undergoing liver transplants are considered obese.The reason for this weight

gain is mainly the immunosuppressive therapy that the patient receives after a transplant. Bariatric surgery represents a valid therapeutic option for patients who become morbidly obese after liver, kidney and pancreas transplantation and other failed nonsurgical therapies. **Methods:** A total of 409 consecutive patients underwent a minimally invasive sleeve gastrectomy as one stage surgery at University of Illinois at Chicago Medical Center from January 2008 to January 2014. Out of 409 patients, 6 had a previous kidney transplant, 2 patient had a previous liver transplant and another one had a pancreas transplant. **Results:** The mean age of the transplant patients was 50.5±14.6 years. The mean preoperative BMI was 48.54±2.96 Kg/m². The average operative time was 72.5±33.7 minutes. The mean length of stay was 4.5±3 days. No complications, no conversions to open and no operations were registered in these patients. Immunosuppressive therapy was no modified after surgery. There were no postoperative complications and no complications related with the graft. The mean excess weight loss at 12 months follow up was 51.2±1.2% **Conclusions:** Sleeve gastrectomy is a feasible technique with good postoperative outcomes as a bariatric procedure after orthotropic liver, kidney and pancreas transplantation. This surgery doesn't increase perioperative risk in those patients.

A5013

Prospective Evaluation of Initial and Repeat Use of a Novel Dual Intragastric Balloon

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Sanchinarro University Hospital[1]

Background: Numerous published studies have shown the intragastric balloon to be a safe and effective non-surgical, reversible obesity treatment option when coupled with a comprehensive bariatric patient follow up program. We report our results with both single and sequential placement of the ReShape Duo® integrated dual intragastric balloon (DIGB) in conjunction with a comprehensive patient care program.
Methods: Patients were prospectively enrolled between September, 2012 and June, 2013. Prior to device placement, patients received counseling to set appropriate expectations regarding nausea and vomiting during the initial stomach accommodation period. Each patient had outpatient, endoscopic placement of a DIGB filled with a total of 900cc of saline (450cc in each balloon). Patients received counseling from a skilled interdisciplinary team for a minimum of 12 months. Study outcomes included weight loss and durability parameters for all subjects, as well as for two subgroups: subjects treated with a single Duo implantation (SINGLE-DUO), and subjects treated with two consecutive Duo implantations (SEQ-DUO). **Results:** Fifty-five (55) subjects (46 females, 9 males) averaged 39 years of age, had a mean BMI of 38.6 (range 29.8-48.2) and weight of 107.2 kg (range 81.2-164.0 kg). On the date of initial DIGB removal from these 55 subjects (mean implantation duration 8.2 ± 2.1 months) mean weight loss (WL), percent excess weight loss (%EWL) and percent total body weight loss (%TBWL) were 16.6 ± 9.7 kg, 47.4 ± 27.0% and 15.5 ± 8.2%, respectively. SINGLE-DUO subjects (n=39) continued to receive regular counseling, SEQ-DUO subjects (n=16) had immediate reinsertion of a second DIGB and also received regular counseling. SINGLE-DUO subjects after a mean of 4.3 months (0-9.5) of post-removal follow-up had unchanged weight parameters (WL= -0.1 kg, %EWL = +1.4%, %TBWL = 0.2% compared with values at DIGB removal). Similar results were found in SEQ-DUO subjects over a mean of 3.1 months of ongoing DIGB treatment; all subjects remain implanted. No safety issues were associated with sequential DIGB placements. For the entire study cohort (n=55) from baseline through a mean follow-up of 12.0 ± 4.1 months, weight loss is substantial with WL = 16.8 ± 10.4 kg, %EWL = 48.4 ± 29.9%, and %TBWL = 15.7%. **Conclusions:** Use of the ReShape Duo device coupled with a comprehensive patient care program demonstrated clinically significant weight loss and weight loss durability. No safety issues were observed with sequential ReShape Duo placements.

A5102

Diabetes Resolution in Bariatric Patients Requiring Statin Therapy

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Beth Taylor Hartford CT1, Darren Tishler Hartford CT1, Pavlos Papasavas Hartford CT1 Hartford Hospital1

Background: Many obese patients eligible for bariatric surgery are concurrently treated with statin therapy. Studies indicate a small but significant risk of new-onset diabetes in patients on statin medication, suggesting that statin drugs may be associated with detrimental metabolic side effects. It is unclear whether these drugs also influence weight loss.

Methods: Retrospective review of a prospectively maintained database. Patients included if they had baseline and 1-year follow-up data. Patients were divided into 4 groups: diabetics on statins (n=357), diabetics not on statins (n=200), non-diabetics on statins (n=314), and non-diabetics not on statins (n=704). We evaluated HbA1c, lipids, fasting glucose and insulin, and weight loss. Diabetes remission was defined using BOLD categories. Bloodwork data was available for 185 patients. Analyses used 2x2 ANOVAs (DM status x statin status) to assess differences within each surgery type.

Results: In the entire sample, DM status (32.9%) and statin use (44.1%) prior to surgery decreased ($p<0.01$) to 16.2% and 25.8% at 1-year after surgery, respectively. Compared to diabetics not treated with statins (n = 200), diabetics treated with statins (n = 357) lost more weight (-26.7±17.5 kg vs. -22.5±15.2 kg for statin vs. non-statin, respectively; p=0.02). In non-diabetics, statin therapy preoperatively did not influence weight loss in non-diabetics (-27.0±17.6 kg vs. -27.9±16.6 kg for non-statin (n = 704) vs. statin users (n = 314; p = 0.42). Statin use prior to surgery did not influence bariatric surgery-induced decreases in HbA1c, lipids, glucose, or insulin in diabetics (all $p\geq0.24$) or non-diabetics ($p\geq0.22$). A total of 159/357 (44.5%) of diabetics on statins had remission of DM at 1-year after surgery versus 124/200 (62.0%) of DM not on statins ($p<.001$). This difference was also observed for and lapband (37.7% versus 57.5%; p=.001) but not RYGB (61.1% versus 70.7% (p=.18).In the RYGB group, 203/468 patients were on statins and188/468 were diabetic. .There was an interaction between statin therapy and DM status (p=.03). In general, those who were using statins lost more weight (mean=-42.8 kg) compared to those who were not on statins (mean=-35.8 kg, $p<.001$), however the weight loss difference between statin users and non-statin users was more pronounced in those who were diabetic (meanst&DM=42.1 kg; mean~stDM=31.3 kg). There were no main effects or interactions of statins on 1-year HbA1c (p=.65), insulin (p=.59), fasting glucose (p=.22), and lipids (p=.09-.74). In the LAGB group, 437/1034 were on statins and 336/1034 were diabetic. There were no main effects or interactions on any outcome variables (p=.15-78).

Conclusions: These data suggest that while statin therapy does not influence weight loss from bariatric surgery in non-diabetics, it may augment weight loss in patients with diabetes after 1 year. In particular, RYGB patients achieved greater weight loss on statins versus no statins. We also found that statin use did not impact DM remission for RYGB. While our weight loss findings may be associated with an indirect impact of statins, our data do not support a detrimental effect of statin therapy in obese patients undergoing RYGB, although it did affect DM remission rates in LAGB.

*** Presentation under consideration for the John Halverson Young Investigator Award**

A5100

The Post-Bariatric Surgery Experience: Survey Results at 3-, 6-, and 12-months Post-Surgery

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Mayo Clinic[1]

Background: Adherence with behavioral recommendations after bariatric surgery has been shown to reduce post-surgical complications and enhance outcomes. However, behavioral adherence to post-surgical recommendations (nutrition/hydration, vitamin/mineral, physical activity) has been shown to be highly variable. Additionally, the rate of adherence for given behavioral domains may change dramatically during the postoperative period. Similarly, the presence of GI symptoms postoperatively may fluctuate over time. The aim of this survey is to understand key areas of the patient experience in the first year after undergoing weight loss surgery, in an effort to increase post-surgical adherence and improve clinical outcomes. **Methods:** Patients who underwent primary bariatric surgery at Mayo Clinic in Rochester, MN, between May 2010 and January 2014 completed an electronic survey at 3-, 6-, and 12-months post-surgery. The electronic surveys given at 3-, 6-, and 12-months post-surgery were identical, consisting of 12 multiple choice questions; 11 items allowed patients to input free text, in an effort to obtain more detailed quantitative and qualitative data. Sample topics included: satisfaction with having undergone bariatric surgery; post-surgical challenges; nutrition and hydration recommendation adherence; vitamin and mineral recommendation adherence; post-surgery support; physical activity; and GI symptoms. **Results:** A total of 1336 surveys were completed (99.3% of patients seen), with 572, 464, and 300 surveys completed at 3-, 6, and 12-months post-surgery, respectively. Greater than 98% of all patients surveyed reported being happy they had undergone bariatric surgery. Regarding adherence to recommended nutrition and hydration guidelines, 82%, 81.5%, and 81.7% reported full adherence at 3-, 6-, and 12-months post-surgery, respectively. Of those who reported non-adherence with the guidelines, difficulty consuming adequate hydration was the most common free text entry. Similarly, 78.7%, 81%, and 76% of patients reported full adherence with the recommended vitamin and mineral guidelines. Of those that reported non-adherence with the guidelines, forgetting to take their vitamins/minerals was the most common free text entry. The presence of GI symptoms was reported by 20.2% of patients at 3-months post-surgery. However, this number declined to 14.2% and 13.7% at 6-, and 12-months post-surgery, respectively (Table 1). When questioned as to the most challenging aspect of the post-surgical period, the most common responses were adherence to nutrition and hydration recommendations, adherence to physical activity recommendations, the presence of GI symptoms, and lifestyle/psychosocial considerations (Table 2). **Conclusions:** Our survey results show that nearly all patients who underwent primary bariatric surgery are happy they did. However, primary challenge domains were identified,

*** Presentation under consideration for the John Halverson Young Investigator Award**

including adherence to recommendations for nutrition and hydration, vitamins and minerals, and physical activity; and the presence of GI symptoms. Our findings include patients seen in follow-up and may not accurately reflect the aggregate experience of all patients who have undergone bariatric surgery. However, identifying key components of the patient experience after bariatric surgery provides insight on how best to augment existing models of care, in an effort to increase post-surgical adherence, thereby enhancing post-surgical outcomes.

A5101

Post-Operative Respiratory Volume Monitoring in Obese Patients: Identification of Patients at Risk for Opioid-Induced Respiratory Depression

Brad Snyder *Houston TX*[1], Edward George *Boston MA*[2], Diane Ladd *Morgantown WV*[3], Roman Schumann *Boston MA*[4], Evan Pivalizza *Houston TX*[4]

University of Texas Medical School[1] Massachusetts General Hospital, Harvard[2] West Virginia University[3] Tufts Medical School[4]

Background: Obese surgical patients are considered a greater risk for post-operative respiratory complications such as post-operative apnea (POA). With current monitoring and subjective clinical assessment it is difficult to objectively identify patients at risk. Research has shown that in normal weight patients a majority of patients with >80% of expected minute ventilation (MV) prior to PACU opioid administration rarely decrease to <40% of expected MV after opioid. A non-invasive respiratory volume monitor (RVM) that provides continuous, real-time measurements of minute ventilation (MV), tidal volume and respiratory rate inpatients was used to evaluate the effectiveness of this algorithm in the obese population.

Methods: Respiratory traces were recorded from 37 obese (BMI > 35kg/m2) patients (age:48.6±14.6 years; BMI:44.7±8.5kg/m2 undergoing elective surgery with general anesthesia, from a bio-impedance based RVM (ExSpiron, Respiratory Motion, Inc., Waltham, MA) via an electrode PadSet on the thorax after written informed consent. The RVM was synchronized to the ventilator intra-operatively which became baseline MV (MVBASELINE). Within 15 minutes prior to opioid patients were classified as “Not-Un-Safe” (MV≥80%MVBASELINE or “Un-Safe” MV<80%MVBASELINE. Fifteen minutes after opioid patients were classified “At-Risk” if MV was <40%MVBASELINE. The data were compared to see if “At-Risk” status before opioid was predictive of "Un-Safe" MV after opioid.

Results: Based on previous work the 80/40 risk stratification algorithm was applied to this cohort. There were 8/18 (44.4%) patients with an MV <80% of MVBASELINE prior to opioid administration had an MV decrease to <40% of MVBASELINE. Only 1/19 (5.2%) patient with an MV ≥80%MVBASELINE had a decrease to <40% of MVBASELINE. A minute ventilation of <40% of MVBASELINE (sustained for more than 2 minutes) after opioid administration was considered evidence of opioid-induced respiratory depression. This risk stratification algorithm had a sensitivity of 89%, specificity of 64%, a positive predictive value (PPV) of 44%, and a negative predictive value (NPV) of 95%. Our figure shows example an individual patient response (A) with a true positive outcome where MV is <80% MVBASELINE (3.9 L/min; 60% MVBASELINE) prior to opioid administration. As predicted by the 80/40 risk algorithm, the MV drop to <40%MVBASELINE (1.6L/min, 23% MVBASELINE) followed opioid administration. The other response, (B), is a true negative outcome of the 80/40 risk algorithm where the MV is ≥80% MVBASELINE prior to opioid administration of and has a small but transient decrease in MV (7.5 L/min; 75% MVBASELINE) but MV remains >40%MVBASELINE after opioid administration.

Conclusions: The RVM provides real-time, non-invasive objective, quantitative measurements of MV, TV and RR that allows for point-of-care identification of patients who may be at risk for opioid induced respiratory depression (OIRD). This study demonstrated that the 80/40 risk stratification algorithm is a sensitive indicator of risk for OIRD in the obese population. Identifying patients at risk for based on objective, quantitative data can lead to improved patient safety, decreased length of stay, and better post-surgical outcomes. Further study is indicated to refine the risk stratification algorithm in the obese population.

A5102 - MOVED TO TOP 15 POSTERS

Diabetes Resolution in Bariatric Patients Requiring Statin Therapy

Janet Ng *Hartford CT*[1], Kevin Ballard *Hartford Connecticut*[1], Andrea Stone *Glastonbury CT*[1], Beth Taylor *Hartford CT*[1], Darren Tishler *Hartford CT*[1], Pavlos Papasavas *Hartford CT*[1]
Hartford Hospital[1]

Background: Many obese patients eligible for bariatric surgery are concurrently treated with statin therapy. Studies indicate a small but significant risk of new-onset diabetes in patients on statin medication, suggesting that statin drugs may be associated with detrimental metabolic side effects. It is unclear whether these drugs also influence weight loss.
Methods: Retrospective review of a prospectively maintained database. Patients included if they had baseline and 1-year follow-up data. Patients were divided into 4 groups: diabetics on statins (n=357), diabetics not on statins (n=200), non-diabetics on statins (n=314), and non-diabetics not on statins (n=704). We evaluated HbA1c, lipids, fasting glucose and insulin, and weight loss. Diabetes remission was defined using BOLD categories. Bloodwork data was available for 185 patients. Analyses used 2x2 ANOVAs (DM status x statin status) to assess differences within each surgery type.
Results: In the entire sample, DM status (32.9%) and statin use (44.1%) prior to surgery decreased (p<0.01) to 16.2% and 25.8% at 1-year after surgery, respectively. Compared to diabetics not treated with statins (n = 200), diabetics treated with statins (n = 357) lost more weight (-26.7±17.5 kg vs. -22.5±15.2 kg for statin vs. non-statin, respectively; p=0.02). In non-diabetics, statin therapy preoperatively did not influence weight loss in non-diabetics (-27.0±17.6 kg vs. -27.9±16.6 kg for non-statin (n = 704) vs. statin users (n = 314; p = 0.42). Statin use prior to surgery did not influence bariatric surgery-induced decreases in HbA1c, lipids, glucose, or insulin in diabetics (all p≥0.24) or non-diabetics (p≥0.22). A total of 159/357 (44.5%) of diabetics on statins had remission of DM at 1-year after surgery versus 124/200 (62.0%) of DM not on statins (p<.001). This difference was also observed for and lapband (37.7% versus 57.5%; p=.001) but not RYGB (61.1% versus 70.7% (p=.18).In the RYGB group, 203/468 patients were on statins and188/468 were diabetic. .There was an interaction between statin therapy and DM status (p=.03). In general, those who were using statins lost more weight (mean=-42.8 kg) compared to those who were not on statins (mean=-35.8 kg, p<.001), however the weight loss difference between statin users and non-statin users was more pronounced in those who were diabetic (meanst&DM=42.1 kg; mean~stDM=31.3 kg). There were no main effects or interactions of statins on 1-year HbA1c (p=.65), insulin (p=.59), fasting glucose (p=.22), and lipids (p=.09-.74). In the LAGB group, 437/1034 were on statins and 336/1034 were diabetic. There were no main effects or interactions on any outcome variables (p=.15-78).
Conclusions: These data suggest that while statin therapy does not influence weight loss from bariatric surgery in non-diabetics, it may augment weight loss in patients with diabetes after 1 year. In particular, RYGB patients achieved greater weight loss on statins versus no statins. We also found that statin use did not impact DM remission for RYGB. While our weight loss findings may be associated with an indirect impact of statins, our data do not support a detrimental effect of statin therapy in obese patients undergoing RYGB, although it did affect DM remission rates in LAGB.

A5103
Readmissions within 30 days of Bariatric Surgery - A Community Hospital Perspective

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Background: Hospital readmission after bariatric surgery is costly and readmission rates are often used as a quality measure that may effect reimbursement. The purpose of this study was to analyze risk factors that contribute to readmission within 30 days after undergoing bariatric surgery. Identifying those patients at highest risk for readmission may allow for strategies to be developed to minimize readmissions and subsequent associated hospital expenses.
Methods: A retrospective chart review was conducted of patients who underwent bariatric surgery by a single surgeon at a community hospital from July 2008 through December 2013. All patients readmitted within 30 days after laparoscopic Roux-en-Y gastric bypass (LRYGB), laparoscopic sleeve gastrectomy

(LSG), biliopancreatic diversion with duodenal switch (BPD-DS), laparoscopic adjustable gastric band (LAGB), and revisional operations were included. Data collected included patient demographics, insurance provider, comorbid conditions, preoperative BMI, preoperative medications, complications, readmission diagnoses and reoperations. Patients undergoing outpatient EGD were not counted as readmissions.
Results: 1042 bariatric procedures were performed between July 2008 and December 2013. 73 patients accounted for 84 readmissions within 30 days. 11 patients were readmitted twice within 30 days. Readmission rate for all cases was 7.01% (73). Cases included 721 LRYGB, 256 LSG, 21 LAGB, 4 BPD-DS, and 40 revisional surgeries. Readmission rates by procedure were 7.1% (51) for LRYGB, 5.5% (14) for LSG, 25% (1) for BPD-DS, and 17.5% (7) for revisions. No patients were readmitted after LAGB. 88.9% of patients were female. Average age was 44.9 years (22-69). Mean BMI was 48.2 (34-60).Comorbid conditions included pre-existing cardiac disease 16.4% (12), hypertension 63% (46), diabetes 39.7% (29), asthma 24.7% (18), obstructive sleep apnea 39.7% (28), and history of tobacco use 12.3% (9). Patients were on an average of 6.7 medications (0-19). 13 patients (17.8%) were on narcotic medications preoperatively and 11 patients (15.1%) were on preoperative anticoagulation or antiplatelet agents. 23 patients (31.5%) suffered from a postoperative complication prior to initial discharge, 30% (22) of readmitted patients underwent re-operation. Many patients presented at readmission with multiple diagnoses. The most common reason for readmission was nausea/vomiting with dehydration (24.4%). Other common diagnoses included abdominal pain (15%), anastamotic leak (9.4%), abscess (5%), leukocytosis/thrombocytosis/fever (5%), ulcer (5%), small bowel obstruction (4.4%), and anastamotic stricture (3.8%).
Conclusions: Readmission rates after bariatric surgery are highest in LRYGB and revisional surgeries. Patients at highest risk for readmission are difficult to identify due to multiple variables.

A5104
A Comparison of Roux en Y Gastric Bypass to Longitudinal Sleeve Gastrectomy in Severely Obese Diabetic Patients: Assessment of Impact on Diabetes and Weight Loss

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Background: Roux en Y gastric bypass (RYGB) has a noted benefit for type 2 diabetes mellitus (T2DM). There has been a recent transition from RYGB to longitudinal sleeve gastrectomy (LSG); the reasons for this include ease of the initial operation and reduction in the long term complications of anastomotic ulcer, mineral deficiencies and internal herniation. The relative merit of LSG in comparison to RYGB in severely obese diabetics is not yet fully understood. We analyzed our series to assess the outcomes of RYGB and LSG in diabetic severely obese individuals with regards to weight loss and amelioration of T2DM.
Methods: This is a retrospective review of severely obese individuals (BMI > 35 kg/m2) with well controlled T2DM (Hgb-A1c < 7.5%) undergoing RYGB or LSG. We assessed demographics, type and number of diabetic medications, and used HOmeostasis Model of Assessment to estimate insulin resistance (HOMA-IR), insulin sensitivity (%S) and ß-cell sensitivity (%B). Weight loss was measured by % excess body weight (%EBW) and by delta BMI. We used Kaplan-Meier survival curve analysis to study remission of T2DM, defined as discontinuation of all diabetic medication without current or subsequent evidence of inadequate glycemic control (i.e. Hgb-A1c > 7.0).
Results: The RYGB group (n = 178) was similar to the LSG group (n = 28) with regards to demographic factors (age, gender, weight, BMI, EBW), diabetic medication regimens, and preoperative Hgb-A1c. The RYGB group had a longer median follow up (695 days vs. 198 days). There was no difference in probability of achieving adequate glycemic control off of medications postoperatively (log rank p = 0.15). However, postoperative glycemic control was significantly better in the RYGB population at 6 weeks (6.0 + 0.6% vs 6.5 + 0.6%, p = 0.03) and at 6 months (6.0 + 0.8% vs 6.6 + 1.1%, p = 0.04). Weight loss, as measured either by %EBW or by delta BMI was better in the RYGB

population at 6 weeks, 6 months, and at 1 year postoperatively.
Conclusions: While LSG has a measurable benefit for T2DM, this effect is less powerful than that of RYGB, with regards to degree of glycemic control and to weight loss, at least up to 1 year postoperatively. Studies such as this, in addition to analyses of complications and of cost, provide data that should be utilized by surgeon and patient in making a rational decision between RYGB and LSG.

A5105
Trends in Bariatric Practice 2003 to 2011
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Department of International Health, JHSP[1] Johns Hopkins Center for Bariatric Surge[2] Johns Hopkins (CSTOR)[3] Johns Hopkins Internal Medicine[4]

Background: The National Inpatient Sample (NIS), the largest all-payer inpatient health care database in the United States, has previously been analyzed to report trends in bariatric surgical practice and associated sociodemographic characteristics. However, little has been reported regarding recent trends in bariatric surgery. This study examines rates of bariatric surgical procedures, surgical complications, and sociodemographic trends from 2003 to 2011.
Methods: Using the National Inpatient Sample, we retrospectively identified 203,204 patients who underwent bariatric surgery from 2003 to 2011. The International Classification of Diseases, 9th Revision (ICD-9) was used to identify bariatric surgical procedures, comorbidities, and surgical complications. Trend tests of proportion on annual estimates of surgical procedures, complications, and patient characteristics were performed. Complications were adjusted for age, sex, Charlson Index, type of insurance and median annual household income in the zip code where the patient resides.
Results: We found a significant decrease in the number of bariatric surgical procedures from 21,866 in 2003 to 19,668 in 2011 ($p<0.001$). Mean length of stay decreased from 3.2 to 1.8 days ($p<0.001$). Increased rates of bariatric surgical revision, hematoma, and acute renal failure were observed ($p<0.001$). The mean age of the population increased from 42.2 to 44.8 years ($p<0.001$), and there was an increase in the proportion of patients age 50 and older ($p<0.001$). The proportion of females undergoing bariatric surgery decreased from 82.6% to 78.1% ($p<0.001$), and the proportion of whites decreased from 77.6% to 69.7% ($p<0.001$). The proportion of patients on Medicare increased from 6.4% to 16.3% ($p<0.001$), and those on Medicaid from 5.0% to 11.8% ($p=0.002$), while the number of private insurance patients declined from 82.8% to 63.3% ($p<0.001$). No significant trends were observed with respect to income distribution.
Conclusions: Despite the increasing number of morbidly obese patients, the number of bariatric procedures declined from 2003 to 2011. Increasing rates of certain bariatric surgical complications were observed in the recent data. Less disparity was noted with respect to gender, race and insurance type. Changes in bariatric surgical practice and reimbursement may explain these differences. The overall decline in bariatric surgical procedures is an unexpected finding that warrants further investigation.

A5106
Potentially Avoidable Hospitalizations Pre and Post Bariatric Surgery
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New York State Department of Health[1]

Background: Benefits of bariatric surgery include weight reduction as well as improvement in numerous co-morbid conditions associated with obesity. The Agency for Healthcare Research and Quality developed Prevention Quality Indicators (PQIs), a set of measures used to evaluate hospital admissions for ambulatory sensitive conditions. The purpose of this study is to use the PQIs to assess the rate of avoidable inpatient hospitalizations one year pre and post bariatric surgery. Based on current research indicating relief from numerous health conditions following bariatric surgery, we hypothesize that there would be a decrease in the rate of potentially avoidable hospitalizations after bariatric surgery.
Methods: Statewide Planning and Research Cooperative System (SPARCS) data, which

contains hospital inpatient discharge records from New York State hospitals were used to identify 9,401 adult bariatric surgeries in 2011. Bariatric surgery was identified as inpatient hospital discharges with a primary diagnosis of overweight or obesity and a primary procedure for bariatric surgery. The four bariatric operations examined in this analysis included: open gastric bypass, laparoscopic Roux-en-y gastric bypass, laparoscopic gastric band, and laparoscopic sleeve gastrectomy. There were five people who had bariatric surgery performed twice in 2011, so only the first surgery was kept in the study. Also, three patients died during the surgical admission, so those were removed as well, leaving a study population of 9,393 patients. Patients were observed one year prior and one year post their initial bariatric surgery to identify hospital admissions. There were a total 1,220 hospital discharges within one year before the surgery and 2,404 hospital discharges within a year after the surgery for these patients. The AHRQ PQI measures were analyzed, except PQI 2 Perforated Appendix. PQI rates were calculated by dividing the number of PQI admissions by the number of at risk hospital admissions.

Results: Lower PQI rates for hospitalizations post-surgery were found for all PQIs except Diabetes Long-Term Complications and Dehydration. While the increase for diabetes was nominal (0.49 to 0.71), the increase for dehydration was substantial (0.33 to 6.2). Due to the large increase in dehydration admissions and the fact that dehydration after bariatric surgery is a complication, it was removed from the composite PQI calculation. The composite PQI rate for hospitalizations before bariatric surgery was 14.02, down to 4.24 after bariatric surgery. In terms of general hospitalization rates, patients had more hospitalizations the year after surgery compared to the year before.

Conclusions: Although the number of hospitalizations increased after bariatric surgery, the majority of them were for complications related to the surgery. The rate of potentially avoidable hospitalizations decreased after surgery compared to before surgery. This suggests that bariatric surgery could be relieving a patient's chronic health condition, such as diabetes or asthma, or that these patients are receiving follow-up care for their surgery and these conditions are being addressed before so severe it results in an inpatient admission. Further statistical correlation between perioperative and postoperative hospital admissions and patient demographics, comorbid conditions, complications during surgery, and bariatric procedure will be presented.

A5107

Bariatric and Metabolic Outcomes in the Superobese Elderly

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Background: Bariatric surgery is now considered to be the most effective therapy for durable weight loss and is capable of profound improvement of metabolic derangements like diabetes mellitus and dyslipidemia. While numerous reports address bariatric and metabolic outcomes in superobese or elderly patients, there are no studies addressing the high-risk combination of extreme body mass index (BMI) and age. The aim of this study was to assess the medium-term outcomes of various bariatric surgical approaches in a superobese (BMI ≥ 50 kg/m2) elderly (age ≥ 65 years) population.

Methods: We retrospectively identified all primary bariatric cases performed by 1 of 5 surgeons at Cleveland Clinic between 2006 and 2012 on patients 65 years or older with a BMI ≥ 50 kg/m2. Surgical approaches included: laparoscopic Roux-en-Y gastric bypass (LRYGB), laparoscopic sleeve gastrectomy (LSG) and laparoscopic adjustable gastric banding (LAGB). Patient demographics, perioperative parameters, metabolic profiles and follow-up data were extracted and analyzed. Effectiveness of weight loss therapy was measured by calculating percent excess weight loss (%EWL) based on an ideal BMI of 25 kg/m2.

Results: We identified 30 patients (26 female, 4 male) with a mean age of 67.1±2.7 years and BMI of 55.9±3.9 kg/m2 who had either LRYGB (n=16), LSG (n=6) or LAGB (n=8). There were no deaths, conversions or intraoperative complications. The 60-day morbidity rate was 16.7% (5 complications within 13 days postoperatively) and included one anastomotic leak (3.3%), one early/temporary obstruction, one arrhythmia, one deep vein thrombosis and

one pulmonary embolism. Complications by procedure were: 2/16 (12.5%) for LRYGB, 2/6 (33.3%) for LSG and 1/8 (12.5%) for LAGB. Three patients were lost to follow-up after 3 months. At a mean of 39.4 months (median, 37; range 6-95) follow-up, the cohort had a mean BMI of 42.3±6.7 kg/m2, which corresponded to a mean %EWL of 44.5±20.5%. The most effective %EWL was achieved after LRYGB (55.8±19.3% at mean 33.1 months) followed by LSG (48.3±10.2% at mean 35.8 months) then LAGB (26.2±14.4% at mean 55.9 months). Diabetic or pre-diabetic patients had a 0.675 mean decrease in HbA1c overall (n=8; -0.85 for LRYGB, -1.6 for LSG, and +0.5 for LAGB) and 88.3 mg/dl mean decrease in triglyceride levels (n=9; 100.6 for LRYGB, 59.5 for LSG, and 75.7 for LAGB).
Conclusions: The outcomes of bariatric surgery in the high-risk superobese elderly population are not well studied. While further research is needed, our data suggests that successful weight loss and metabolic improvement can be achieved, albeit with increased morbidity than lower risk groups. LRYGB appears to be the most effective weight loss operation in this population.

A5108
Does Ethnicity affect bariatric surgery outcome?
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Background: Forty five of African Americans and 36% of Hispanics adults in the United States are deemed obese. Cultural aspects and customs are unique and vary, based on ethnicity. The main of this study is to analyze is there are differences in outcomes regarding type of surgery and ethnicity.
Methods: A total of 609 consecutive patients underwent a minimally invasive sleeve gastrectomy (SG) or a Roux-en-Y gastric bypass (RYGB) from January 2008 to December 2013. Statistical analysis was performed comparing patients divided in four groups depending if ethnicity was Caucasian, Hispanic, African American and other (that included Asian and no reported). Statistical analyses were performed following one-way analysis of variance (ANOVA), Chi-square test and T, Fisher and Student's t-test and also Nonparametrics Tests.Patients 'demographics, perioperative parameters , early morbidity (30 days) and outcomes at 6 and 12 months follow-up were evaluated.
Results: 87 patients were Caucasian, 133 patients were Hispanic, 250 patients were African American and 62 were codified as Other. 85.5% of patients were female ($p<0.05$), which is commonly reported. The mean age at surgery of the total of patients was 41.64(SD=10.4) years old and there were no significant differences comparing age in between groups ($p=0.7$). The mean BMI of the total of patients at surgery was 49.39(SD=8.27) kg/m² and there were no significant differences comparing mean BMI in between groups ($p=0.125$). No significant differences were found regarding preoperative comorbidities comparing different ethnicity groups. Data with patients' demographics and comorbidities is summarized in table 1. A leak and 2 conversions to open surgery were registered, however no significant differences were found regarding morbidity, complications, conversions to open and mortality. The mean length of stay was 2.8 ± 3.02 days with no significant differences between groups ($p=0.9$). The mean excess weight loss (EWL) was analyzed at 6, 12, 24 and 36 months follow up regarding ethnicity group. Statistical significant differences were found at 6, 12 and 24 months follow-up. Data summarizing in table 2. Analyzing EWL at 6, 12, 24 and 36 months follow up regarding type of surgery in different ethnicity group there were also significant differences ($p<0.05$). In the Caucasian group, we didn't find significant differences. In the African American group, there were significant differences ($p<0.05$) at 6 and 12 months follow up. In the Hispanic group, there were significant differences ($p<0.05$) at 6, 12 and 24 months follow up. Patients who underwent a Roux-en-Y gastric Bypass lost more weight. Data is summarizing in table 3.
Conclusions: In our experience on 609 patients of different ethnicity, there were no significant differences in terms of demographics, comorbidities, perioperative and postoperative complications, length of stay and resolution of comorbidities. We found significant differences in term of follow-up EWL, showing that in the African American group, patients have a EWL lower. Regarding type of surgery in between groups, in Caucasian both surgeries were equally effective, and in the Hispanic and the African American group, the RYGB achieve a

higher EWL than the SG (p<0.05).These results may guide the indication of the bariatric procedure depending ethnicity.

A5109

A Comparison of Post-Bariatric Surgery Patients and Weight-Matched Control Participants Following a Weight-Based Dose of Alcohol

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Background: Recent research findings show an accelerated rate of absorption and heightened sensitivity to alcohol following bariatric surgery. Additionally, several alcohol-related automobile accidents and deaths have been reported following bariatric surgery. This literature supports earlier media reports suggesting significant changes in frequency of alcohol use and rate of intoxication from drinking alcohol. The combination of anecdotal and empirical evidence has led to the development of an "addiction transfer" model. This theory suggests that in the absence of the ability to use large amounts of food as a coping strategy, post-bariatric surgery patients may exchange this behavior for an alternative maladaptive behavior such as alcohol misuse. These findings have highlighted the current lack of knowledge in the field related to the frequency of alcohol use, the associated mood precipitants and consequences, and level of impairment following bariatric surgery.
Methods: In the current study we compared two groups of participants: a post-bariatric surgery group and a weight-matched control group. Participants were given a weight-based dose of alcohol and were compared on breath alcohol content (BAC), driving performance, and ratings of negative affect.
Results: BAC comparisons show a marked difference between groups in the first 20 minutes following the dose of alcohol. In spite of the BAC differences, driving performance and ratings of affect did not differ between groups.
Conclusions: The pharmacokinetics of alcohol differ between post-bariatric surgery patients and weight-matched non-surgical participants. In spite of these differences, driving performance did not differ between these groups. Possible reasons for the BAC differences and the lack of driving and affect differences are discussed.

A5110

Gastric Sleeve: a large single center experience

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Background: The long-termmetabolic changes and weight loss after sleeve gastrectomy (SG) are not yet well documents. Large series studies with long term follow up are still needed to support the endorsement of laparoscopic SG (LSG) as a definitive, stand-alone procedure. The aim is to present a large series of consecutive laparoscopic sleeve gastrectomy performed at a center of excellence for bariatric surgery. Primary end points are weight loss percent, resolution of obesity-related co-morbidities and long term outcomes.
Methods: After IRB approval, a retrospective analysis of a prospectively maintained database was conducted. All patients who underwent LSG for morbid obesity from January 2005 to February 2014 were included.Demographics included the preoperative and postoperative at 1, 3, 5 and 8 yearsBMI, gender, age at the operation, comorbid conditions and its postoperative improvement, percentage of excess weight lost (%EWL) along the years, perioperative outcomes (intraoperative complications, length of hospital stay, early readmissions) and long term morbidity (leak, stricture, and gastroesophagic reflux disease-GERD).
Results: A total of 1040 LSG have been performed at the Bariatric & Metabolic Surgery Center-Cleveland Clinic Florida. We present our partial data of 960 patients (66.6% female), mean age of 38.4 ± 16.5 years at the time of surgery. MeanpreoperativeBMI at 1, 3, 5 and 8 years was 43.4±5.8, 27±8, 23.6±4, 31.6±2.1, 34.8±8 kg/m2. Improvement of hypertension, diabetes mellitus type 2, sleep apnea and hyperlipidemiaoccurred in 91%, 57%, 99% and 79%, respectively. Mean %EWL at 3 tomonths, 1, 3,5 and 8 years was of 72±16.8, 86±22.3,

63±19,61±11 and 52 ± 9.2, respectively. The overall success rate (%EWL> 50%) was of 92% after 1 year, 89% after 3 years, 75% after 5 years and 73% after 8 years. Mean hospital length of stay was of 3.4± 2.1 days,with 3.8% overall rate of early readmissions,most commonly for dehydration due vomiting. Long term morbidity such as leak, stricture, and gastroesophagealreflux disease occurred at 0.1% (n=1), 0.73% and 6%, respectively. Conversion rate to Roux-en-Y gastric bypass was of 1.25% (0.52% due to GERD and 0.43% for weight regain). Loss of follow up at 3, 5 and 8 years was of 81%, 87% and92%, respectively. **Conclusions:** Sleeve gastrectomy is an effective weight loss procedure with high success rates, and significant improvement of obesity-related comorbid conditions. Quality of life and food tolerance assessments are currently on the way.

A5111

Secondary Hyperparathyroidism ½-5 Years after Gastric Bypass

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Background: Secondary hyperparathyroidism (SHPT) represents a major concern after bariatric surgery, posing risk of bone loss and fractures. After Roux-en-Y gastric bypass (RYGB), intake and absorption of calcium and vitamin D may be reduced. Studies have shown increased parathyroid hormone (PTH) and prevalence of SHPT after RYGB, and some have observed associations with serum calcium or vitamin D. Few long-term studies exist of SHPT after RYGB. We tested whether SHPT and PTH changed over time ½-5 years after RYGB in a Norwegian cohort. Changes of serum calcium and vitamin D were evaluated similarly. **Methods:** Oslo University Hospital has performed RYGB since 2004. Postoperatively, all patients were invited to a standardized follow-up programme at ½, 1, 2, 3-4 and 5 years by dieticians, surgeons and physicians. Blood samples were taken at follow-up and analyzed for serum PTH, ionized calcium (iCa) and 25-OH vitamin D (25(OH)D). Intact PTH, iCa and 25(OH)D were analysed with the same methods throughout the study period. Patients who had attended 5-year follow-up by January 2012 with valid values of PTH at 1, 2 and 5 years postoperatively were included. SHPT was defined by PTH > 7.0 pmol/l. **Results:** Of 171 RYGB patients, 88 (51%) were included. The prevalence of SHPT after RYGB was 20.5%, 29.5%, 34.1%, 34.1% and 42.0% at ½, 1, 2, 3-4 and 5 years, respectively. Mean PTH increased correspondingly, with values 5.6, 6.2, 6.3, 6.3, and 7.3 pmol/l ($p < 0.05$) at these follow-ups. The serum iCa values were 1.23, 1.23, 1.22, 1.21 and 1.21 mmol/l ($p < 0.001$), respectively, and the values of 25(OH)D were 74, 74, 65, 60, 63 nmol/l ($p < 0.001$). Further analyses showed no significant correlations of the PTH changes with changes in iCa ($\beta = -0.21$; $p = 0.096$) or in 25(OH)D ($\beta = -0.029$; $p = 0.79$). **Conclusions:** The study points out challenging disturbances in the PTH-calcium homeostasis after RYGB as PTH increased and the prevalence of SHPT doubled over 5 years. In the same period, both iCa and 25(OH)D decreased. More knowledge is needed about the consequences and long-term treatment of SHPT.

A5112

Heterogeneity of Weight Loss After Gastric Bypass, Sleeve Gastrectomy, and Adjustable Gastric Banding.

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Background: Roux-en-Y Gastric Bypass (RYGB), Sleeve Gastrectomy (SG), and Adjustable Gastric Banding (AGB) all can lead to significant weight loss in morbidly obese patients. However, long-term weight loss can be highly variable following the first post-op year. This variability may not be expressed entirely by the arithmetic mean and the heterogeneity in weight loss after surgery could be under-expressed. This study seeks to examine and compare the frequency distribution and variability of weight loss up to 3-years following RYGB, SG, and AGB. **Methods:** 1694 consecutive patients at a single academic institution were prospectively followed. Preoperative data collected included patients' demographic information, BMI, and pre-op percent excess weight loss (%EWL). All procedures were laparoscopic and standardized without change in technique. Postoperative BMI

and %EWL were collected at 12-, 24-, and 36-months. The distribution of %EWL was evaluated in 10% increments. Mean, median, standard deviation, standard error of mean, skewness, kurtosis, and coefficient of variation were calculated for all time points. All statistical analysis was done using GraphPad Prism 6. **Results:** From a total of 1694 patients, 76.0% (n=1288) were RYGB, 15.2% (n=257) were SG, and 8.8% (n=149) were AGB. RYGB patients were more likely to have lower income (RYGB 61.4, SG 66.2, AGB 69.9 K, p<0.001), be female (RYGB 80.9%, SG 74.7%, AGB 73.1%, p=0.013) and have a higher preoperative BMI (RYGB 46.9, SG 43.6, AGB 43.3 kg/m2, p<0.0001). RYGB, SG, and AGB patients all followed a similar single peak distribution for %EWL at 12-months postoperative, with RYGB patients experiencing the greatest weight loss (RYGB 75.1 ± 22.4, SG 59.8 ± 23.4, AGB 42.7 ± 25.9, p<0.001). AGB patients had the highest variability in 12-month %EWL (coefficient of variation- RYGB 29.8%, SG 39.1%, AGB 60.6%). However, at 36-months postoperative %EWL distributions for both SG and AGB deviated from this normal single peak distribution and followed a more complex, left shifted distribution with a negative kurtosis value. AGB patients had a 2-peak distribution, SG had a single left skewed distribution, and RYGB had a normal single peak distribution. At 36-months, SG patients had a much higher coefficient of variation that was more similar to AGB patients (RYGB 32.68%, SG 52.13%, AGB 62.90%). For all surgery types, 36-month %EWL was not significantly different from 12-month %EWL.
Conclusions: While RYGB, AGB, and SG patients follow a similar single peak distribution for %EWL up to 1-year after surgery, AGB and SG patients experience less predictable and more variable weight loss results at 2- and 3-years after surgery compared to RYGB. Further exploration of factors that influence the greater variability in AGB and SG can help improve the preoperative counseling given to bariatric patients.

A5113
Longitudinal Sleeve Gastrectomy: Optimal Procedure for Males Seeking Type II Diabetes Mellitus Resolution
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Background: Type II diabetes mellitus, a condition that affects one in six adults world wide is defined by the improper use of insulin dually noted as insulin resistance, or reduction of insulin production. As a result, patients experience hyperglycemia and are unable to properly manage their blood glucose levels without prescribed medication. With the birth of bariatric surgery within the last three decades, Longitudinal sleeve gastrectomy (LSG) and Roux-en-Y gastric bypass (RYGB) have been reported to resolve several comorbidities of morbid obesity, including but not limited to Type II diabetes. Heated scholarly debates over which procedure manages/resolves type II diabetes most efficiently is still a matter of choice. Yet, many studies lack the sample size to make such broad winded claims. The purpose of the following study is to analyze and compare the resolution of type II diabetes with respect to 562 male (LSG) and 113 male (RYGB) patients.
Methods: Patients (n=562 male) received a longitudinal sleeve gastrectomy (LSG). While patients (n=113 male) received a Roux-en-Y Gastric Bypass (RYGB) from 2008 till 2013. Prior to their procedure date preoperative blood work was drawn, and was redrawn every subsequent three (3) months till one (1) year post operatively. Blood panels tested for markers of Diabetes mellitus include: adiponectin, C-reactive protein, ferritin, interleukin-2 receptor A, glucose, and insulin.
Results: Complete resolution of Type II diabetes mellitus occurred in 79.8% of LSG patients, with a marked improvement in 16.4% of patients, and 3.8% remained stable. Complete resolution of type II diabetes mellitus occurred in 48.6% RYGB patients, with a marked improvement in 8.8% of patients, and 42.6% remained stable.
Conclusions: In the following study, LSG resolved type II diabetes mellitus by a significant amount over RYGB patients, with respect to male patients. In conclusion, longitudinal sleeve gastrectomy (LSG), in accordance with the data, seems the most viable and optimal option for male patients seeking type II diabetes resolution and management in addition to weight loss.

A5114
Adaptative Thermogenesis and Body Composition among Obese Population Using a Very Low Calorie Diet

*** Presentation under consideration for the John Halverson Young Investigator Award**

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Background: In treating obesity, success in achieving weight loss is influenced by changes in energy expenditure, principally in basal metabolic rate (BMR) and indicators that can influence, such as hormonal activity and body composition. The dominant factor of body composition that provokes this change is fat-free mass (FFM), this being the tissue having greater energy expenditure per unit of body weight. Very low calorie diets (VLCD) are used in weight loss among obese patients. However, may cause a reduction in metabolic rate greater than predicted due to changes in body composition. This decline is called adaptive thermogenesis and can hinder the maintenance of ponderal weight loss over the long term.This study aimed to evaluate the basal metabolic rate (BMR) and body composition in clinically severe obese patients before and after following a very low calorie liquid diet when compared to one of normal consistency.
Methods: This is a prospective clinical randomized study. One hundred and four clinically severe obese patients (IMC ≥ 35 with comorbidities or IMC > 40 with or whitout comorbidities) were separated into 2 different groups: 57 consumed a liquid VLCD and 47 a normal consistency VLCD for 14 days, both with 700 kcal/d, 75 g of protein (high biological value), 70 g of carbohydrates and 18 g of fat. Information gathered was analyzed for weight and body composition data using bioelectrical multifrequencial impedance and energy expenditure data using indirect calorimetry. Data were collected at baseline and 14 days after intervention. To compare the means between the two groups we used the Student t test for those variables that had a Gaussian distribution in both groups and the nonparametric Mann - Whitney test for variables that did not show Gaussian distribution in both groups. A significance level of 5% was used and the data were analyzed using the SAS 9.3 application. This study was approved by the Ethics Committee of the Faculty of Health Services at the University of Brasilia (no. 160/09) and registered in Clinical Trials (NCT01748682).
Results: In the two groups there was a decrease in BMR after intervention (in absolute terms and when adjusted per kg of body weight and FFM) (Liquid Diet decrease: -234.2±49.4 kcal/-2.0±0.7 kcal/kg of body weight); Normal consistency Diet decrease: -139.9±55.1 kcal/-1.9±0.7 kcal/ kg of body weight), but no statistical difference was found between them. Considering the two groups, the mean caloric intake decreased from 1800 to 850 kcal/d after intervention, indicating adherence to the VLCD. Both groups lost weight, however, no loss of FFM in either group was found (Table 1.1). The weight loss was 38% greater among the patients who were instructed to consume a liquid diet ($p = 0.0001$).
Conclusions: Adaptive thermogenesis was observed using the VLCD, even considering that there was no loss of FFM and that basal metabolic rate fell in both groups. Additional instruments are needed in controlling adaptive thermogenesis among obese patients a fim de amenizar a dificuldade de manutenção ponderal após a perda por essa população.

A5115

Bariatric surgery for Super-Super Obesity. One or two steps?

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Background: BackgroundA higher presence of comorbidities with an increased perioperative morbidity and mortality rate, associated with the difficulty to achieve ideal weight are all characteristics of super-super obese patients (BMI> 60 kg/m2). These characteristics make this group of patients a major challenge. Different surgical treatment for super-super obese patients has been proposed: a two-step procedure (intra-gastric balloon(IGB) followed by Sleeve Gastrectomy(SG) or SG followed by Roux en Y Gastric Bypass(RYGB)) and one-step surgery either SG or RYGB without global consensus. Nevertheless, bariatric surgery is expensive and therefore a second step surgery is not always an option, especially in developing countries.
Methods: A retrospective, comparative study was conducted among patients with BMI > 60 kg/m2 undergoing bariatric surgery at the Clínica

Integral de Cirugía para la Obesidad y Enfermedades Metabólicas in Mexico City from June 2010 to December 2013. Patients were divided in four groups: Group 1 (G1): intra-gastric balloon (IGB) followed by sleeve gastrectomy (SG); Group 2: SG followed by Roux en Y Gastric Bypass (RYGB); Group 3: SG and Group 4: RYGB. Perioperative outcomes, % excess weight loss (%EWL) and BMI loss were compared using a one way ANOVA test.
Results: From 684 surgeries performed, 29(4.2%) of them were on Super-Super Obese patients, with a mean BMI 66.4 kg/m2 (60-80.1). Mean age was 39.4 years (24-57) and 65.51% were female. Six of the patients (20.7%) had T2DM, 13(44.8%) hypertension and 5(17.2%) dyslipidemia. Five patients (17.2%) were included in G1, 5 in G2, 13 (44.82%) in G3 and 6 (20.7%) in G4. Mean operating time was 90+7, 310+68, 114+36 and 183+58 minutes and the mean intra-hospital stay was 3.5, 4.6, 5, 3.5 days for G1 to G4, respectively. No major complications were reported in G1 and G4. Two major complications were observed in G2 (1 gastrojejunal anastomosis leak and 1 Petersen hernia). In G3, 5 major complications were observed (1 re-intervention for short gastric bleeding, 1 leak at angle of His, 1 re-intervention for bleeding at trocar, 1 stricture at incisura angularis, treated by endoscopy and one patient deceased after a massive pulmonary embolism 14 days after surgery) (< 0.0001). Mean %EWL at 12 months in G1 was 74.4+15.3%, in G2: 62.9+19.3%, G3: 56.6+6.2% and G4: 67.8+14.1%.
Conclusions: Two step procedure IGB+SG offered the best %EWL at 1 year(74.4) compared with the other procedures, although no significance was observed(p=0.067). As well IGB+SG offered significant the smaller operating time (90+7 min,p=0.0038). A significant number of major complications were observed in SG as a primary procedure group against the rest of the groups(p< 0.0001), which could be related either for the difficulty of the cases, as in the patient who died(180 kg, BMI=80.1) or the experience of the surgeons. In our center, IGB+SG offered the best outcomes, however a higher sample might be required to confirm our results.

A5116
Impact of post-operative phone calls on bariatric surgery readmission rates

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Background: Efforts to reduce post-operative emergency department (ED) visits and hospital readmissions is a goal for bariatric programs. Readmission rates were recently selected as a quality measure. From April 2012 to February 2013, 358 Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) and Laparoscopic Sleeve Gastrectomy (LSG) surgeries were performed. 30-day ED visit rates and hospital readmission rates were 8% and 6%, respectively. To decrease these rates, our hospital implemented a program for routine post-discharge phone calls to bariatric patients. The calls emphasized the importance of hydration, helped to manage their concerns at home, and educated them about when to present to the ED.
Methods: In April 2013, the bariatric surgery department implemented a program for routine post-discharge phone calls three to five days after hospital discharge. Phone calls were made by experienced Physician Assistants or a bariatric nurse to all patients who had a bariatric operation. Visits by these patients and hospital readmissions were tracked for 30 days after each surgery. Rates of ED visits and readmissions were then compared by surgical procedure (LRYGB and LSG) between patients who received a post-operative phone call versus patients who were not reached. Data between groups was analyzed using Fisher's exact test.
Results: A total of 321 patients underwent LSG or LRYGB between April 2013 and February 2014. Of those patients, 251 received post-operative phone calls and 70 patients were unable to be reached. Statistical analysis revealed that the intervention led to no significant changes in ED visit rates for LSG patients (9.2% vs. 8.6% contacted vs. not contacted; p=1.0) or LYRGB patients (0.4% vs. 2.9% contacted vs. not contacted; p=0.2). As seen in Table 1, 4.4% (n=11) of LSG patients reached were readmitted compared to 5.7% (n=4) of patients not reached (p=0.5). In the LRYGB group, 1.2% (n=3) of patients reached were readmitted, while 22.9% (n=16) of patients

not reached were readmitted (p<0.001). **Conclusions:** A considerable number of patients are seen in the ED or readmitted following bariatric surgery. Implementing a post-operative phone call three to five days after discharge did not change ED visit rates within the first 30 days after surgery. Rates of LSG readmissions weren't impacted by the calls, but reaching LRYGB patients by phone was clearly correlated with a decreased hospital readmission rate. Considering the increasing popularity of the LSG, further investigation is needed for procedure specific strategies and educational elements that may better provide preventative health calls that selectively impact readmissions and ED visits in LSG and LRYGB patients.

A5117

Referring Obese Patients for Bariatric Surgery: Resource Targeting Based on Local Physician Attitudes

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Greenville Health system[1]

Background: Obesity affects more than one-third of adults in the United States, with an annual cost of more than $145 billion. Surgery has proven superior to non-operative therapy for maintenance of weight loss and resolution of comorbidities in multiple studies. However, fewer than 200,000 bariatric surgeries are performed annually. It is clear that more patients would benefit from surgery than receive it. We conducted a survey of physicians in our health system to gauge knowledge and perceptions of bariatric surgery in order to better understand the barriers that exist within the medical community.
Methods: A 30-question survey was designed to assess the baseline knowledge and perceptions of bariatric surgery and its outcomes, the practice patterns regarding care of obese patients, and referral for surgery. It was distributed to all physicians, physician assistants, and nurse practitioners in the Greenville Health System (GHS), and approved by the University Medical Group (UMG) president and GHS Human resources. Data was collected anonymously for analysis. Respondents were separated into those recommending weight loss surgery (n=53) and those who do not (n=54). Chi-square test was used for comparative analysis, with p<0.05 considered a statistically significant difference in response.
Results: A total of 107 surveys were available for analysis. There was no difference in degree or licensure, duration or setting of practice, or specialty between the two groups. A significant difference was seen in those who responded always/sometimes to recommending weight-loss treatment (89%) and weight-loss surgery (87%) versus those who do not recommend treatment (59%; p=0.003) or surgery (13%; p<0.001). The number of patients referred for weight loss surgery between the two groups was also significant (p<0.001). Providers that recommended bariatric surgery were more likely to recognize the benefits of surgery for comorbidity resolution than those who did not (p=0.036); they were also more likely to cite medical comorbidities as the primary reason for referral for surgery (p=0.035). The most frequently cited deterrents to recommending surgery included cost, patient insurance status, it falling outside of their specialty or responsibility, and being unfamiliar with local surgeons. Perceptions of criteria for surgery, resolution of comorbidities, and complications of surgery were not statistically significant. The standard 60-80% improvement in comorbidities was correctly chosen by only 17% of respondents; 54% perceived complications to be higher than published data.
Conclusions: Our data indicate a significant disparity between published outcomes of bariatric surgery and the perceived outcomes cited by providers. Not surprisingly, those who frequently refer patients for surgery were more likely to recognize its benefits. Unexpectedly, a frequently cited deterrent to referral was cost, and a substantial number of providers did not consider obesity treatment or referral to be their responsibility. This study provides valuable insight into the perceptions of bariatric surgery. Targeted education on indications, cost, referral process, and outcomes is important in the recruitment of other providers into the surgical care of the obese patient.

A5118

The effects of different PPAR activation upon hepatic remodeling in diet-induced obese mice

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The State University of Rio de Janeiro[1] Professor UERJ[2] UERJ[3] Professor-UERJ[4]

Background: The burden of obesity is a growing problem worldwide. Non-alcoholic fatty liver disease (NAFLD) describes a range of conditions caused by fat deposition within liver cells. The PPARs agonists have been used to treat obesity and diabetes with beneficial effects upon body mass, lipid storage and pancreatic and hepatic steatosis. The aim of this study is to investigate the effects of treatment with different PPARs agonists upon molecular and structural hepatic remodeling in diet-induced obese mice.
Methods: Male C57BL/6 mice were assigned to receive standard chow diet (SC, 10% energy as lipids) or high-fat diet (HF, 50% energy as lipids) during 10 weeks, when treatment started, forming the following groups: SC group, HF group, HF-BZ group (HF + Bezafibrate, pan-PPAR agonist), HF-WY group (HF + WY-14643, PPARalpha agonist) and HF-GW group (HF + GW1929, PPARgamma agonist). PPAR agonists were added to HF diet and treatment lasted four weeks. Liver remodeling was evaluated by biochemical and molecular approaches. One-way ANOVA and the post-hoc Holm-Sidak test were used ($P<0.05$)
Results: HF and HF-GW were overweight at the end of treatment. Conversely, HF-BZ and HF-WY presented body masses equal to SC. Insulin sensitivity was restored by all treatments as well as blood lipids and adiponectin. Hepatic steatosis was countered in HF-WY and HF-BZ as both of them provoked higher mRNA expression of PPARalpha and CPT-1a, favoring beta-oxidation. This could be confirmed through marked reduction in liver triglycerides content in these animals. HF-GW, on the contrary, presented higher PPARgamma and FAS/CD136 mRNA expression, facilitating hepatic lipogenesis
Conclusions: WY14643 and Bezafibrate treatments emerged as the most powerful approaches to overcome metabolic and hepatic constraints due to obesity and insulin resistance.

A5119

Changes in Gut Hormone Physiology following Laparoscopic Sleeve Gastrectomy in Obese Indians with Type 2 Diabetes Mellitus. Preliminary data of a Pilot study in Indian Subcontinent

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Background: The obesity pandemic has not even spared India. Indians have unique fat distribution which makes them vulnerable to Diabetes at a much lower BMI. The Indian Gut physiology also tends is different because of different dietary habits. The encouraging resolution rates in our Diabetic patients who underwent Laparoscopic Sleeve Gastrectomy prompted us to embark on this ambitious project We are trying to evaluate the changes in the gut hormone physiology of Indians and what makes Laparoscopic Sleeve Gastrectomy work in "INDIAN DIABESITY". This is the first such study in the Indian Subcontinent to the best of our knowledge.
Methods: A prospective cohort study enrolling 50 Indian patients with BMI > 32.5 Kg/m2 with Type 2 Diabetes Mellitus undergoing Laparoscopic Sleeve Gastrectomy has been started in July 2013 after necessary reviews and Ethical Clearance. At present 17 patients have consented to be a part of this study. Baseline levels of Glucose, Insulin, C-Peptide were measured in Fasting(F) and Postprandial(PP)states. Fasting HbA1C levels are evaluated and HOMA-IR index is calculated. Baseline fasting levels of GHRELIN, GLP-1 & PYY are evaluated. Postoperatively patients will be re-evaluated at 1week, 1 month,6 months and at 1 year.
Results: The MEAN values are:- At presentation: Age (40.9 years), Female (n=8); Male (n=9). Weight (130.4 kg), Height (1.63 m), BMI (49.07 Kg/m2); Waist/ Hip ratio (1.18). FBG (139.26 mg/dl), PPBG (184.24 mg/dl), HBA1c (8.124 %), Fasting Insulin (38.34µU/mL), PP Insulin (89.68 µU/mL), Fasting C-Peptide (4.99 ng/ml), PP C-Peptide (9.44 ng/ml),. The HOMA-IR (13.2). Fasting gut hormone levels: Ghrelin (155.6688), GLP-1 (40.71551), PYY(70.52944)

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pmol/l respectively.At 1 week :- Weight (123.3 Kg), Excess Weight Loss(7.1 kg); Ghrelin (115.305), GLP-1 (50.55866), PYY (56.70063) pmol/l respectively.At 1 month:- Weight (114.8 kg), Height (1.63 m), BMI (43.2 Kg/m2); Excess Weight Loss (15.6 kg),Waist/Hip (1.05cm). FBG (117.73), PPBG (126.3), HBA1c (6.43 %) , Fasting Insulin (15.59µU/mL), PP Insulin(20.2 µU/mL), Fasting C-Peptide (2.69ng/ml), PP C-Peptide (5.53 ng/ml). The HOMA-IR (4.53).At 6 months: Weight (91.4 kg), Height (1.63 m), BMI (34.40 Kg/m2); Excess Weight Loss (38.9 kg),Waist/Hip (0.97 cm). FBG(94mg/dl), PPBG (120.3 mg/dl), HBA1c (5.8 %) , Fasting Insulin (3.59µU/mL) , PP Insulin(10.2 µU/mL), Fasting C-Peptide (2.4ng/ml), PP C-Peptide (5.53 ng/ml). The HOMA-IR was (0.83). Fasting Ghrelin (123.153), PP Ghrelin (116.06); Fasting GLP-1 (44.465), PP GLP-1 (54.895); Fasting PYY (64.529), PP PYY (142.75) pmol/l respectively.

Conclusions: The preliminary data shows that Laparoscopic Sleeve Gastrectomy even though traditionally believed to be a restrictive procedure, does lead to metabolic alterations by producing changes in the gut hormones and resetting the deranged Gut- Endocrine Axis. Further data and follow up would be required to substantiate our results.

A5120

Comparison of three staple line reinforcement techniques in vertical sleeve gastrectomy.

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GRMEP[1] Grand Health Partners[2] Michigan State University College of Hum[3] GRMEP, MSU Department of Surgery[4]

Background: Laparoscopic vertical sleeve gastrectomy (SG) represents 67.3% of bariatric procedures performed in Michigan in 2013. Staple line reinforcement has been shown to reduce incidence of complications. Currently, there are no large studies supporting any one type of reinforcement technique. The objective of this study is to determine the staple line reinforcement technique that is most effective in preventing complications in SG.

Methods: The charts of 1,526 consecutive patients who underwent a SG from January 2005 to January 2013 were reviewed. Data include patient demographics, reinforcement utilized, length of hospital stay, complications, 30-day hospital readmission and mortality.

Results: Of 1,502 patients who underwent a SG and met inclusion/exclusion criteria, 373 (24.8%) were reinforced using imbrication, 269 (17.9%) with bovine pericardium, and 860 (57.3%) with polyglycolic acid:trimethylene carbonate Maxon polymer. Patient demographics and complication rates were similar between groups. A statistically significant difference occurred in length of stay, readmission and reoperation rates ($p<0.01$). Length of stay was shortest in the bovine pericardium group, but readmission and reoperation rates were statistically higher, and there was a trend towards increased leaks ($p=0.08$).

Conclusions: Significantly increased readmission and reoperation rates with a trend towards increased leak rates occurred with bovine pericardium reinforced staple lines and may indicate that reinforcement of the staple line using imbrication or with polyglycolic acid:trimethylene carbonate Maxon polymer may be superior. Differences in length of stay may be related to surgeon practice patterns. There was no difference in bleed rates among the three groups.

A5121

The Effect of Sleeve Gastrectomy on Extraesophageal Reflux Disease

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Stony Brook University[1] SUNY Stony Brook University Bariatric & Metabolic Weight Loss Center[2] SUNY Stony Brook University[3]

Background: Sleeve gastrectomy (SG) is cited to have increased rates of post-operative reflux-related symptoms compared to alternative procedures. Many patients undergoing bariatric surgery present with co-morbid GERD, making the choice of surgical intervention complex. Whereas studies have delineated a relationship between SG and GERD, there is a scarcity of data regarding the effects of SG on extraesophageal reflux disease (EERD). The goal of this study is to explore the potential

effect of sleeve gastrectomy on extraesophageal reflux, which may affect patient quality of life post-operatively.
Methods: A rodent model was used to test whether SG is associated with acute inflammation from EERD. Weight-matched Wistar rats were fed high fat diets (HFD) until their weight doubled. They were divided into sleeve gastrectomy (n=19) and HFD (n=25) groups and euthanized at 12 weeks. The trachea and lungs were harvested en-bloc and preserved for histopathologic analysis. Two SG specimens could not be sectioned and were excluded. A blinded board certified pathologist determined the presence of acute inflammation, emphysema, alveolar hemorrhage (AH), interstitial thickening and atelectasis. A Pearson's chi-square test was used for comparison with $p \leq 0.05$ considered statistically significant.
Results: No evidence of acute inflammation was noted in HFD or SG rat airways. Pneumonitis was detected in one (5.9%) SG animal. Sub-acute inflammation was manifest in another SG rat. Emphysematous changes were present in 24% SG (n=4) and 16% (n=4) HFD; interstitial thickening was present in 29% (n=5) SG and 28% (n=7) HFD. There was no statistically significant difference in the incidence of either pathologies compared to HFD groups, p=0.8339 and p=0.9208, respectively. AH (35% n=6 vs. 80% n=20) and atelectasis (24% n=4 vs. 56% n=14) were present in the SG rats less frequently than HFD, p=0.03 and 0.14.
Conclusions: This study did not demonstrate a significant difference in extraesophageal reflux disease between obese rats offered sleeve gastrectomy versus those given a high fat diet only. AH was more common in the HFD group. Studies have linked AH to proinflammatory states, like obesity, that alter alveolar epithelial transport. Such a state may be less prevalent in the SG group. Some of the rats were euthanized by cardiac puncture, which may also be confounding. Many studies describing EERD report laryngopharyngeal mucosal changes. Future studies are in progress to evaluate the effects of sleeve gastrectomy on EERD involving the upper airway.

A5122 Prevalence of Alcohol Use Disorders after Bariatric Surgery: A LABS Interview Study

See abstract detail under A1004 in the Integrated Health Sessions Oral Presentations.

A5123
Hospital Admissions for Patients after Laparoscopic Roux-en-Y Gastric Bypass Surgery vs. Patients Denied Surgery for Insurance-related Reasons

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Gundersen Medical Foundation[1] Gundersen Health System[2]

Background: The National Institutes of Health have established criteria that patients must satisfy before undergoing bariatric surgery; however, many insurance companies have their own criteria in order to obtain approval. Previous research at our institution has demonstrated that the most common reason patients do not undergo surgery was insurance-related, and new-onset comorbidities increased over a 3 year follow-up among patients who were denied LRYGB compared to those who underwent surgery. Our objective was to evaluate all-cause hospital admissions and charges among patients who were denied laparoscopic Roux-en-Y gastric bypass (LRYGB) for insurance reasons compared to those who underwent LRYGB.
Methods: After IRB approval, our electronic medical record system was queried for all-cause hospital admissions among patients who attended an initial visit for bariatric surgery from January 2000-December 2012, but were denied by insurance, and those who underwent LRYGB from September 2001-December 2012. Statistical analysis included Wilcoxon Rank Sum test, and Fisher exact test.
Results: There were 1209 patients who underwent LRYGB and 228 patients who were denied. Mean follow-up was 4.4 and 5.8 years in the LRYGB and denials groups, respectively ($P<0.001$). There were 886 admissions in 402 patients in the LRYGB group, and 112 admissions in 58 patients in the denials group over the follow-up period (Table). There were no perioperative mortalities. Overall mortality was 2% in both the LRYGB and denials group.
Conclusions: Although more comorbidities were observed in the LRYGB group initially, there was no difference in the number of admissions or charges associated with admissions in the LRYGB vs. denials group. Patients who were denied surgery had

increased medical admissions, while those who underwent LRYGB had increased psych-related admissions.

A5124

Lipid panel for diabetes one year after surgery considering ADA objectives.

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Elpidio Gonzalez y Tuyuti[1]

Background: Bariatric surgery causes improvement of the lipid panel in patients submitted to this procedure.
Methods: Retrospective observational study that included 36 morbidly obese diabetic patients who were submitted to bariatric surgery, gastric sleeve (GS) or gastric bypass (GBP). It was analyzed for each patient: insulinemy, glycemy, HOMA index, glycated hemogoblin (HbA1c), total cholesterol, LDL, HDL, triglycerids, basal weight (pre OP) and 1 year after surgery (post OP). For dislipdemia condition it was considered after 1 year the category of improvement or remision of dislipidemia. Remision of dislipidemia was defined by LDL and triglycerids values according to standards for medical care in Diabetes-2014 (ADA) in diabetic patients without hypolipemiant medication.
Results: 17 patients (47.2%) had GBP and 19 (52.8%) had GS. Average age was 47.8 ± 8.7 años and 77.8% (28 cases) were women. Preoperative BMI average was 44.84. Basal glycemy was 133.8 mg/dl ± 53.4 with significant decrease after 1 year of surgery 77.9 ± 29.7 (p=0.0001). HOMA index was 5.9 ± 5.07 decreased to 2.26 ± 3.8 1 year after surgery (p =0.002). Basal LDL cholesterol was 125.28 mg/dl ± 20.9, 1 year after surgery 122.6 ± 39.6 (p= NS). Triglycerids decreased from 205.8 mg/dl ± 114.3 to 129.4 mg/dl ± 41.4 mg/dl (p= 0.002) 1 year after surgery. It was also observed a minor increase in HDL from 44.7 ± 10.01 to 49.0 ± 11.2 (p= 0.006).Remision of the disease was total in 16 patients (44.4%) and partial in 6 (16.7%) for the population.Remision of dislipidemia for GBP was 82.3% vs 42.1% for GS p = 0.003.Patients submitted to GS had at pre OP an average of 44.7 mg/dl ± 10.8, 128 mg/dl ± 24.9 and of 189.1 ± 135.5 of HDL, LDL and Triglycerids respectively. A year after surgery there were no significant changes in HDL (49.4 mg/dl ± 13.7), LDL (138.9 mg/dl ± 44.1), and Triglycerids (140.2mg/dl ± 38.8) p= NS.Basal variables for patients who had GBP were: HDL of 44.8 mg/dl ± 9.7; LDL 122.9 mg/dl ± 17.2; Triglycerids 224.7 mg/dl ± 85. It was observed a post OP increase in HDL (48.4 mg/dl ± 7.2; p= 0.03), and a decrease in LDL (99.2 mg/dl ± 12.5; p= 0.06) and triglycerids (115.2 mg/dl ± 42.8 p= 0.015) EBMIL was 68.42 ± 49.05 after 6 months and 76.55 ± 47.06 1 year after surgery.
Conclusions: One year after surgery it was observed a major percentage of dislipidemia remision in morbidly obese diabetic patients. Remision was significantly higher in patients submitted to Gastric Bypass.

A5125

Comparing results for laparoscopic adjustable gastric banding with adjustable band plication in a medical university hospital

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Taipei Medical University Hospital[1]

Background: Laparoscopic gastric banding (LAGB) is one of the popular operation methods to provide effective weight management in the morbidly obese. New techniques including laparoscopic adjustable gastric band plication (LAGP) has also reported as a safety and feasibility of a novel technique. We aimed to compare laparoscopic adjustable gastric banding and laparoscopic adjustable gastric band plication treatment in obese patients.
Methods: Short-term outcome of 80 consecutive patients undergoing LAGB (15M: 25F) and LAGP(17M:23F) surgery between December 2011 and February 2013 in Taipei Medical University Hospital, Taiwan. The data were collected and analyzed pre- and postoperatively. Weight loss, comorbidity resolution, and the frequency of band adjustment were assessed.
Results: A total of 80 patients(60%female,40 % male)with a mean age of LAGB and LAGP were 34.4(16-57) and 33.0(20-49) years, The preoperative mean body mass index was 35.9 kg/m2(28.0-43.7) for LAGB and 38.7 kg/m2 (27.3-54.0) for LAGP underwent surgery. The mean of excess weight loss (EWL) were 20.3%,

31.9%, 42.9%, and 51.2% for LAGB, and % EWL were 28.8%, 34.7%, 45.7%, and 43.7% for LAGP, at3, 6,9 and 12 months follow up, The mean operation time was 68.5 mins for LAGB and 93.8 m LAGP. The gastric banding adjustment rate was 3.5(0-13) times for LAGB and 1.9(0-5) times for LAGP . The mean hospital stay was 2.1± 0.4days in LAGB and 2.8± 1.2days in LAGP. No mortality was observed. There was no 30days re-admission, and none required reoperation. There was no late complication.
Conclusions: In our study, the results suggest that patients who have received LAGP with more rapid weight loss in the initial 9 months following surgery, but at 12 month, there were no significant difference in excess weight loss .The means hospital stay, nausea and vomiting, as well as, total costs favors LAGB. At one year follow up, LAGP showed no significant better outcome over LAGP. Longer follow-up and more studies are needed to monitor the effects of LAGP.

A5126
Does surgical weight loss affect mammography results?
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Stanford School of Medicine[1]

Background: Morbidly obese women carry an increased risk for cancer compared to the general population. Nearly 80% of obese patients who receive bariatric surgery are those above the mammographic screening age of 40 years old. However little is known about mammographic technical parameters and imaging appearances in obese women, or their changes after bariatric surgery. The purpose of this study is to determine if there are detectable mammographic technical or imaging differences before and after bariatric surgery.
Methods: Pre- and postoperative mammograms on 10 consecutive bariatric patients were evaluated by two independent breast imaging radiologists using standard measurements and scores developed by the American College of Radiology to describe mammogram findings and results. Outcome measures included BI-RADS final assessments (score 0-6), BI-RADS density (score 1-4), imaging quality, compression, breast thickness, pectoral nipple line (PNL) length, and x-ray components kVp and mAs. Demographic data was obtained, and pertinent breast history was collected including age of menarche, menopause, age of menopause, parity, personal history of hormone use, and personal and family history of breast and ovarian cancer. Pre- and postoperative BMI and waist circumference were also obtained. Wilcoxon matched-pairs signed-rank test and chi-squared test were used as appropriate. All data was analyzed using GraphPad Prism 6.
Results: The average patient age was 55.5 years, and the average age of menarche was 13.1 years. 70% of patients were post-menopausal with the average age of menopause of 48.9 years. 50% had a family history of breast cancer. 90% of patients had mammography for screening. There was a significant reduction in BMI (-13.2 kg/m2, $p<0.01$) and waist circumference (-32.0 cm, $p<0.01$) after bariatric surgery. Patients lost 81.5% of their excess weight during the study period. On average, patients had a significant reduction in breast thickness (Right-27.7 Left -25.5 cm, $p=0.002$), PNL length (Right -2.12 Left -2.12 cm, $p<0.01$), kVp (Right -1.43 Left -1.30, $p<0.03$), and mAs (Right -21.9 Left 19.4, $p<0.02$). There was no significant difference in compression force between preoperative and postoperative mammograms. Visually, all pre- and postoperative mammograms were judged of acceptable quality for interpretation ($p=0.25$). The breast density was fatty or scattered in all pre- and postoperative mammograms, but the ratio of the scattered density significantly increased after surgery (preop 60% vs. postop 100%, $p=0.03$). All patients were given a final BI-RADS score of 1 or 2 in both pre- (1 n=8, 2 n=2) and postoperative mammograms (1 n=9, 2 n=1), and there was no significant change in the final BI-RADS assessment between pre- and postoperative mammograms ($p=0.53$).
Conclusions: Weight loss after bariatric surgery leads to significant technical differences in obtaining mammograms. Overall, breasts were denser and patients were exposed to less radiation based on kVp and mAs units. This study shows mammograms in obese women are adequate to read before and after surgery, and weight loss may reduce radiation exposure. Being morbidly obese does not preclude women from having mammograms, before or after surgery.

A5127

IV Acetaminophen as an Effective Component of Multimodal Analgesia in the Peri-Operative Bariatric Population:

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Memorial University Medical Center[1] Mercer University School of Medicine[2]

Background: Obesity in America is an epidemic, and bariatric surgery remains the most effective treatment of morbid obesity. The morbidly obese are at an increased risk of respiratory depression secondary to a higher incidence of obstructive sleep apnea than healthy weight patients. Narcotic administration further increases this risk of respiratory complications in the perioperative period. Respiratory complications result in higher rates of ICU admissions post-operatively and an increase in morbidity and mortality. IV Acetaminophen as part of a multi-modal perioperative pain management approach decreases the administration of narcotics to bariatric patients.
Methods: A retrospective review of the data was performed on 278 patients who underwent laparoscopic Roux-en-Y gastric bypass or laparoscopic sleeve gastrectomy at a single institution between May 2011 and November 2012. The first 144 patients were all administered PCA delivered narcotic analgesia only. The next 134 patients were administered 1 g of IV Acetaminophen every six hours over a 24 hour period in in addition to reducing the narcotic PCA by half. All patient records were reviewed for the types of surgery patients received, sex of patient, BMI, age, length of hospital stay, amount of morphine equivalents received in the first 24 hours, and pain ratings within the first 24 hours.
Results: Retrospective analysis of the data showed that administration of IV acetaminophen with a half dose PCA reduced the morphine equivalents required by 15.4 units. On average, 44 morphine equivalents were given for those who did not receive IV Acetaminophen vs 28.6 for those that were given IV Acetaminophen (P= <0.001). Pain scores showed no statistical difference: 2.52 for those that did not receive IV Acetaminophen vs 2.83 for those that did (P= 0.053). In addition, length of stay was 0.41 days less when given IV Acetaminophen compared to those that did not (P= 0.024).
Conclusions: IV Acetaminophen is a safe, simple, and efficacious component of multimodal analgesia in the post-operative bariatric population. With its addition to a multimodal analgesia regimen, narcotic requirement was reduced by over a third, Pain scores were equivalent, and length of stay was reduced.

A5128

Bariatric surgery in cancer survivorship: Does a history of cancer affect weight-loss outcomes?

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Weill Cornell College of Medicine[1] Memorial Sloan Kettering Cancer Center[2]

Background: Obese cancer survivors are at increased risk of recurrence and secondary cancers, as well as non-cancer related morbidity and mortality. Weight-loss is recommended among this population, including surgical intervention when appropriate, yet survivors may represent a physiologically vulnerable population and it remains unknown if they benefit from bariatric surgery to the same extent as those without a history of cancer. The current study examined one-year weight-loss outcomes among bariatric surgery patients with and without a history of cancer.
Methods: A retrospective chart review was undertaken of 1013 patients who underwent bariatric surgery. Twenty-nine patients met eligibility criteria and were successfully matched by age, gender, pre-surgical BMI and surgery type to patients without a history of cancer.
Results: At one-year post-surgical follow-up, individuals with a history of cancer had lost less weight compared to those without a history of cancer (13.25 vs. 15.01, mean difference=1.75 BMI points); however this difference was not significant (p=0.37), Table 1 shows demographic and surgery group differences. Table 1 Surgery Type Band (n=7) Gastric Bypass (n=12) Sleeve (n=7) BPD/DS (n=3) Cancer Match Cancer Match Cancer Match Cancer Match Mean Mean Mean Mean Mean Mean Mean MeanAGE AT SURGERY (years) 55.7 53.7 56.2 55.0 60.6 59.1 42.0 39.3MONTHS POST SURGERY 12.3 11.0 12.3 12.5 12.4 11.9 13.0 14.3PRE-SURGICAL BMI 45.3 44.4 46.8 46.8 52.7 53.8 49.0 49.59-15 MONTHS POST- BMI 40.1 38.3 29.9 29.5 39.3 37.2 31.8 28.0BMI CHANGE 5.2 6.1 16.9 17.3 13.5 16.5 17.1 21.5% BMI CHANGE 11.6 14.1 35.5 36.5 25.0 30.8 33.9

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43.1% EXCESS BMI LOSS 27.3 34.1 77.9 79.8 49.2 61.8 69.7 88.6P-VALUE 0.62 0.86 0.25 0.60

Conclusions: Cancer survivors appear to draw similar benefit from bariatric surgery as those without a history of cancer. These preliminary results are encouraging in light of the increasing focus on health promotion and weight-loss among the growing cancer survivor population.

*** Presentation under consideration for the John Halverson Young Investigator Award**

A5200

Optimal Port Location of Laparoscopic Gastric Banding Surgery: its'techniques and limitation.

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Seoul 365mc Hospital[1] 365mc Obesity Clinic[2]

Background: Access port locations are still diverse after laparoscopic adjustable gastric banding (LAGB). Port-related complications are not uncommon. Some patients suffer from poor cosmesis and irritating pain with the visible protruding port following sufficient weight loss. Some bariatric patients have too shallow subcutaneous fat layer from the skin to place the access port. They need to have enough space to hide the port. The purpose of this study evaluates the superiority and limitation of subfascial port placement instead of the subcutaneous fat layer placement.
Methods: Data were recorded prospectively by patients' hospital visits and regular phone interview who undertook the same day LAGB at Seoul 365mc Hospital, Korea for 4 years. Patients were operated by the same single surgeon and followed up more than 6 months. The subfascial port placement was constructed with non-fixation for LAP® APs (Allergan, USA) and fixation for Mindband (MID, France) in the space between right rectus muscle and posterior rectal aponeurosis through a 12mm umbilical incision (SB group). The suprafascial port placement was made by 5 points fixation in left anterior rectal aponeurosis through the same incision (SP group).
Results: 832 patients were enrolled. The average age, weight, height and BMI of the SB (n=790) and SP (n=42) group was 32.0 yrs-old vs. 34.9 yrs-old, 95.2kg vs. 97.2kg, 167.3cm vs 165.4cm, and 34.6 kg/m2 vs. 35.3 kg/m2, respectively. Mean follow-up period was 20 months. The operation time was significantly shorter in the SB group (79.6 minutes vs. 91.3 minutes, $p<0.001$). The length of stay after the surgery was short in the SB group (262.4 minutes vs. 289.7 minutes, $p<0.001$). More additional postoperative analgesics needed the SP group (23.7% vs. 40.5%, $p<0.05$). Port site pain after one month from the surgery more frequently developed in the SP group (2% vs. 23.8%). Six patients (16.7%) of the SP group undertook a port revision into the subfascial placement due to cosmetic needs (n=3), skin maceration (n=2) and tube migration (n=1) following sufficient weight loss. One flip was developed in the SB group that was spontaneously normalization. The first 6 subfascial placement with a metallic port of MidBand was converted from a non-fixation to a fixation subfascial placement due to 4 intra-abdominal port migrations and 2 flips within 3 months after the surgery. There was no longer the same problem after this conversion (n=27). Each one port site leak in both group was occurred due to incorrect needling into the root of port-a cath. There was no port site infection and hernia.
Conclusions: The subfascial port placement without suture fixation is superior in reduced operation time and postoperative pain, short length of stay, fewer complication, and better cosmesis. The metallic port of MidBand should be fixed to prevent the intra-abdominal migration in the subfascial port placement. The weakness of this placement is only to need a real time radiography such as C- arm for the filling procedure because of non-palpable port even if sufficient weight loss.

A5201

Incidence and predictive factors of trans-gastric migration after laparoscopic adjustable gastric banding

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Background: Transgastric migration (TGM) is a common complication of laparoscopic adjustable gastric banding (LAGB), commanding its ablation. The current literature does not reveal any predictive factor for TGM. The objective of this study was to screen which patients could have a major risk of TGM to propose a personalized, more invasive, follow-up.
Methods: Participants were the first 600 consecutive patients who underwent placement of a LAGB in our department. They have been included in a prospective observational study (NCT01129297) and received a comprehensive follow-up in accordance with the French recommendations. Moreover they had a

systematic endoscopy during routine visits after 1, 5 and 10 years. TGM incidence was calculated using Kaplan-Meyer method (KMM). Clinical data were available for 95% of the cohort at 10 years.
Results: There was no death related to LAGB. Baseline BMI was 48.6 ± 6.5 kg/m2. Excess BMI loss at 10 years in an intention to treat analysis was 46.1 ± 32 %. Twenty-one patients presented TGM and according to KMM, incidence at 10 years was 8.3%. The median time to onset was 4.92 [IQR: 2.22 to 8.29] years. There was no significant difference in preoperative characteristics between patients with and without TGM. A rapid weight loss at 3 months was the only independent predictor of TGM in univariate analysis (24.3 ± 7.4% in the migration group vs 18.3 ± 12.8% ($p < 0.001$)) and in multivariate analysis (Cox Model). An excess BMI loss > 15 % at 3 months (ROC) predicted TGM (odds ratio of 8.683). This rapid weight loss was not associated with overinflation of the LAGB because TGM risk increased with the absence of inflation during the first 3 months (odds ratio: 4.1 [1.3 to 12.8]) incriminating directly bands' size. In all these 21 patients, LAGB has been removed (laparoscopy n = 16, endoscopy n =4) without major procedure related complication.
Conclusions: Rapid weight loss after LAGB is the only predictor of migration, probably due to chronic hypertension on the gastric wall. Our results argue in favor of a progressive and moderate inflation of the LAGB but also of the use of large band. Indeed, the intrinsic diameter of LAGB, more than its inflation, appears to play a major role in this disease process.

A5202
Examining the value of bariatric surgery devices: a managed care approach
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Background: Health insurers are becoming more focused on utilizing evidence on value in order to justify technology adoption decisions. Bariatric surgery has been identified as an important procedure from the point of view of managed care plans due to its perceived high cost. In the literature, the concordance between scientific approaches used to evaluate the value of bariatric surgery and financial approaches of managed care is an open question. We hypothesized that the synthesis of evidence related to cost effectiveness from a managed care perspective would identify barriers to adoption of bariatric surgery devices in health plans.
Methods: We utilized a structured tool designed to facilitate the evaluation of medical technologies by health actuaries, the professionals with a major responsibility for financial outcomes in managed care health plans. We applied the tool to the adjustable gastric band-C product (Realize®). The base case context for the use of the structured tool simulated the managed care perspective through a hypothetical integrated health plan covering both pharmacy and medical benefits. In our analysis, we synthesized publicly available evidence regarding the cost, clinical effectiveness, and cost effectiveness of this product from a managed care perspective.
Results: The structured tool effectively synthesized the evidence base regarding the adoption of the adjustable gastric band-C product from a managed care perspective. As a result of this simulation, we found three main challenges for evaluating this product for adoption by managed care: 1) identifying comparators, 2) utilization rates, and 3) the accessibility of clinical evidence.Each challenge was related to the differences in the boundaries of the financial and clinical perspectives and availability of data rather than the rigor of existing studies. Identifying comparators was challenging for managed care plans because obesity has a multifaceted impact on other major benefits offered by a health plan such as medications, diagnostics, procedures, behavioral interventions, and other benefits like wellness programs. Utilization rates presented a challenge because the relatively low percentage of covered individuals expected to use bariatric surgery meant that health insurers may find it difficult to compare internal and external data on cost and outcomes. The need to gather clinical evidence was difficult for managed care payers because monitoring success of bariatric surgery required the use of clinical outcomes such as weight, which is typically available in clinical data but may not be available in the claims database within managed care.
Conclusions: While a great deal of evidence exists about bariatric surgery devices such as the adjustable gastric band-C, this evidence does not adequately address the financial concerns of managed care plans. Stakeholders

within managed care that are accountable for the cost of care may be unable to use the available evidence base to evaluate the adoption of existing or novel bariatric surgery technologies in their health plan. As a result, future research opportunities regarding the outcomes of bariatric surgery include a focus on costs from a managed care perspective, and whether tailoring cost data for health insurers can facilitate patient access.

A5300

Bowel Obstruction Rates in Antecolic/Antegastric vs. Retrocolic/Retrogastric Roux Limb Gastric Bypass: A Meta-Analysis

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Background: Previous literature is varied with regards to rates of bowel obstruction after laparoscopic Roux-en-Y gastric bypass (LRYGB). Internal herniation through mesenteric defects is a common cause of bowel obstructions after LRYGB. There are advantages and disadvantages to routing the Roux limb via a retrocolic/retrogastric (RC/RG) versus an antecolic/antegastric (AC/AG) position.
Methods: A literature search for articles published from 1994-2013 for the following terms was completed: laparoscopy, morbid obesity, bariatric surgery, gastric bypass, intestinal obstruction, intraoperative complications, postoperative complications, hernia, antecolic, antegastric, retrocolic, retrogastric. Articles were limited to English language, human subjects, and adults. Articles were included if they reported an n>25, Roux limb route, obstruction rate by route, and follow-up duration. Only the most recent publication was included for authors with multiple articles meeting inclusion criteria. Statistical analysis included chi square test by patient number.
Results: The initial literature search identified 241 articles. After review of abstracts and selected full text articles, 8 papers from 2004-2011 met inclusion criteria. There were 4805 patients in the AC/AG group, and 2238 in the RC/RG group. There were no open gastric bypass cases included. Follow-up duration ranged from 0 – 68 months. A linear stapled technique was reported in 4231 (88%) patients in the AC/AG group and 1541 (69%) of RC/RG group. Handsewn closure of mesenteric defects was reported in 2152 (45%) patients in the AC/AG group, and 1012 (45%) patients in the RC/RG group. Bowel obstructions occurred in 68 (1.4%) patients in the AC/AG group, and 117 (5.2%) patients in the RC/RG group (P<0.001). Internal hernias were reported in 65 (1.3%) patients in the AC/AG group, and 52 (2.3%) patients in the RC/RG group (P<0.001). Two mortalities were reported in the AC/AG group, and no mortalities were noted in the RC/RG group (6/8 articles reported mortality).
Conclusions: Increased rates of bowel obstruction and internal hernia were observed in the RC/RG group compared to the AC/AG group. A prospective, randomized trial would be necessary to definitively determine the impact of Roux limb position and routine closure of mesenteric defects on bowel obstruction rates after gastric bypass.

A5301

Bariatric surgery is safe in patients with bleeding disorders.

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Background: Von Willebrand disease affects approximately 1 in 100 persons, although the majority are not diagnosed. This disease can cause significant bleeding in surgical patients. There is no literature regarding bariatric surgery in patients with known Von Willebrand disease, possibly secondary to avoidance of major elective procedures in these patients. Given the high prevalence of this coagulopathy, many patients who would benefit from bariatric surgery may not be receiving it. We performed a laparoscopic roux-en-y gastric bypass without complication in a female with prior post-operative bleeding complications from Von Willebrand disease by working closely with a hematologist.
Methods: The patient is a 47 year old female with a BMI of 40 with Type I Von Willebrand disease who had suffered severe bleeding after childbirth, menometrorrhagia requiring hysterectomy, and post-operative bleeding requiring blood transfusion following a ventral hernia repair with mesh. Comorbidities included reflux, obstructive sleep apnea, hypertension,

hyperlipidemia, and recurrent ventral hernias. After she was deemed a candidate for gastric bypass surgery, our hematologist proposed a regimen of antihemophilic factor/von Willebrand factor complex and performed a pre-operative trial to confirm its adequacy. This regimen was started pre-operatively, and factor levels were followed, allowing adjustments throughout the perioperative period.
Results: The pre-operative trial revealed a low baseline VWF activity with an increase to adequate VWF activity and Factor VIII levels recorded at two hours after administration of 3000 VWF:RCo units and persistently adequate levels at 8 hours, equivalent to the proposed trough level (Table 1).Perioperatively: factor levels prior to the operation start time, as well as post-operatively remained within accepted limits (Table 2).Intra-operatively she had minimal bleeding despite the need for extensive lysis of adhesions secondary to her multiple ventral hernia repairs with the use of mesh. Her post-operative hemoglobin was stable. She had no post-operative bleeding events and the drain which was left in the abdomen was removed on post-operative day 2, prior to discharge to home.Her dose was adjusted to 12 hourly dosing on post-operative day 1 as her factor levels were higher than necessary. On post-operative day 2 the antihemophilic factor/von Willebrand factor complex was stopped, and her VWF was checked prior to and one hour after giving subcutaneous DDAVP, with resulting increase in VWF level from 115 to 165, demonstrating adequate response. She was therefore discharged to home with subcutaneous DDAVP for the next three days. No complication arose after discharge to home.
Conclusions: Use of antihemophilic factor/von Willebrand factor complex and DDAVP with close monitoring of Factor VIII and VWF activity in the perioperative period allowed us to perform a laparoscopic roux-en-y bypass surgery without any bleeding complication in a patient with von Willebrand disease with a significant bleeding history. Her hospital stay was not prolonged, and she did not require any blood transfusions. This suggests that with close collaboration between hematologic and surgical services, gastric bypass surgery can be safely performed on patients with von Willebrand disease allowing affected persons with morbid obesity to reap the benefits of weight-loss surgery.

A5302

Postoperative morbidity and morality after single-stage laparoscopic gastric bypass in the super and the super-super obese patient.

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Background: Surgical management of the super and super-super obese patient (BMI 50-50.9 and >60 kg/m²respectively) has been a challenging problem associated with higher morbidity and mortality leading to propose a two-stage procedure to reduce the complication rate, though many studies support that laparoscopic Roux-en-Y gastric bypass as a single stage procedure in higher BMI patients does not increase transoperative or postoperative complications and mortality.
Methods: A set of 45 super and super-super morbidly obese patients (N=29 and N=16 respectively) whom underwent a Single-Stage Laparoscopic Roux-en-Y Gastric Bypass were retrospectively studied from October 2012 to March 2014, collecting preoperative demographics such as gender 14F/31M; mean age: 36.9 (range: 21-56), mean weight (Kg): 180.4 (range: 131-330), mean BMI: 60.9 (range: 50.6-104.4), mean %EW: 179.5 (range: 122.8-384.5). Also operative and transoperative time, minor and major early (<15 days) and late (>15 days) postoperative complications and mortality. Additionally, EWL, %EWL and %EBMIL within the first month (30±5) of follow up, were included in this study.
Results: Mean operative time was 140 minutes. Transoperative complications observed were:minor liver laceration (N=3, 2.2%) and major bleeding (N=2, 1.5%). Minor early postoperative complications observed in this group were: vomiting (N= 12, 8.9%), nausea (N=11, 8.1%), wound infection (N=4, 3%). Major early complications were: Acute Respiratory Distress Syndrome (N=4, 3%) and Intraluminal/Intra-abdominal bleeding (N=3, 2.2%). Late major complications were:Upper Gastrointestinal Bleeding (N=1, 0.7%), Gastrojejunal stenosis (N=1, 0.7%), Ring slippage (N=1, 0.7%). Mortality was absent. Mean EWL (Kg) was 17.2 (range: 6-3), mean %EWL was 16.2 (range 4.9-42.2) and mean %EBMIL was 17.4 (range: 5.8-38.4).
Conclusions: Laparoscopic gastric Roux-en-Y

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gastric bypass can be safely performed as a single stage procedure in the super and super-super obese population with no increase in morbidity and/or mortality.

A5303

Surgical approach of the super and super-super obese patients with one day preoperative diet.

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Background: The use of preoperative diet with a very low energy intake has been stimulated to reduce liver size and abdominal adiposity getting rapid weight loss. Researchers suggest a minimum duration of two weeks to decrease surgical risks so there will be less comorbidities. According to this, super obese (SO) and super-super obese (SSO) patients (BMI 50-59.9 and ≥60 Kg/m² respectively) are not frequently selected for laparoscopic Roux-en-Y Gastric Bypass (LapRNYGB) without preoperative diet. Several studies explain that LapRNYGB in SO and SSO does not increase postoperative morbidity. Our aim was to demostrate that one day liquid preoperative diet does not increase complications after LapRNYGB in the SO and SSO patients.
Methods: Between 2012 and 2014 clinical data was collected from a retrospective registry of 45 SO and SSO patients (N=29 and N=16, respectively). LapRNYGB was performed after a 24 hour liquid preoperative diet (mean calorie intake: 900 Kcal). Data review included: gender distribution (14F/31M), preoperative: weight (Kg) (mean: 180.4, range: 131.3-330), BMI (mean: 60.9, range: 50.6-104.4), EW (Kg) (mean: 113.8, range: 63.6-261.9), %EW (mean: 179.5, range: 122.8-384.5), and diet related adverse effects. Operative and transoperative time, minor and major early (<15 days) and late (>15 days) postoperative complications and mortality, EWL, %EWL and %EBMIL were measured within the first 30±5 of surgery.
Results: Diet related adverse effects were: headache (N= 5, 3.7%), dizziness (N=4, 3%), weakness (N=2, 1.5%). The average operation time was 110 minutes. Overall rate of transoperative complications was 3.7%: minor liver laceration (N=3, 2.2%) and Major bleeding (N=2, 1.5%). Acute Respiratory Distress Syndrome (N=4, 3%) and Intraluminal/Intra-abdominal bleeding (N=3, 2.2%) were registered as major early postoperative complications. Late major complications were Upper Gastrointestinal Bleeding (N=1, 0.7%), Gastrojejunal stenosis (N=1, 0.7%), Ring slippage (N=1, 0.7%). No deaths were reported. Mean EWL (Kg) was 17.2 (range: 6-3), mean %EWL was 16.2 (range 4.9-42.2) and mean %EBMIL was 17.4 (range: 5.8-38.4).
Conclusions: The one day liquid preoperative diet before Laparoscopic Roux-en-Y Gastric Bypass does not increase transoperative and postoperative complications in super and super-super obese patients.

A5304

Low Perioperative Risks with Totally-Robotic Roux-en-Y Gastric Bypass in a large (1000) Single-surgeon Patient Series

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Background: The da Vinci robotic surgery system, with its ergonomic advantage, 3-D vision, and tremor control, may reduce perioperative risks with RYGB and improve the integrity of anastomotic construction. In this study, we present the peri- and postoperative outcomes of the largest series (n=1000) of totally robotic Roux-en-Y gastric bypass (TR-RYGB) procedures performed by a single surgeon.
Methods: The study is a retrospective review of 1000 TR-RYGB procedures performed by a single surgeon between January 2009 and December 2013. Measurements included: 1) demographics (age, BMI, gender), 2) perioperative complications and conversions, 3) complications and reoperations during the hospital stay (In-stay), 4) 3-day readmissions and reoperations, and 5) postoperative weight loss (% EWL, % change BMI).
Results: The study population included 730 (73%) females and 279 (27%) males. Preoperative BMI averaged 48.8+8.1 (range = 34.3-83.9), with 37% of patients having a BMI > 50. Mean age was 49.3+12.8 (range = 18-76 y) and 25% of the population were > 60. Docking, console and total operative times averaged 3.4+1.9, 85.2+25.2, and 125.7+27.6 min,

respectively. Perioperatively, there was one conversion to an open procedure (rate = 0.1%) due to a bleed and 4 complications (the bleed and 3 misfired staples) for a total perioperative complication rate of 0.4%. Total length of stay was 2.3+1.9 days. In-stay complication and reoperation rates averaged 2.8% and 2.7%, respectively. 30-day readmission rates averaged 3.5% for malaise (nausea, vomiting, dehydration) and 3.3% for physical issues, and, the mean 30-day re-operation rate was 1.6%. Mortality rates for the first 30 days averaged 0.3% and, among the 1000 procedures, there were no (0%) anastomotic leaks. Postoperative weight loss (% EWL) at 6, 12, 24, 36, and 48 months was a respective 53.4%, 68.2%, 69.2%, 69.3%, 66.3% and total % change in BMI a respective 25.3%, 34.8, 35.3, 35.5, and 33.0%. **Conclusions:** Data from a single surgeon's series suggests that totally robotic Roux-en-Y gastric bypass lowers perioperative complications and the risk for anastomotic leaks.

A5305

Predictors of Post-Operative Aftercare Attrition among Gastric Bypass Patients

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Background: Poor adherence to post-bariatric surgery aftercare continues to challenge many surgical practices, resulting in biased weight loss, comorbidity resolution and complication information. The objective of this analysis was to identify factors that predict who is high-risk for poor attendance at post-gastric bypass surgery (GBS) aftercare.
Methods: A retrospective medical chart review of adult morbidly obese patients who underwent laparoscopic GBS by a single surgeon from 2002-2011 were analyzed. Planned follow-up (FU) visits were scheduled at 1, 3, 6, 12, 18, and 24-months post-surgery and then annually. Patients with > 4 visits in the first 2 years (>50%) were categorized as "acceptable FU" and patients with ≤ 50% visits as "poor FU." Demographics, social history and Charlson Comorbidity Index (CCI) score were compared between two groups. Multivariate analysis (using binary logistic regression with backward stepwise elimination) generated FU predictors. **Results:** Out of 2658 patients (mean age 41.2±12.5 years, 77% female), 1584 (59.6%) had poor FU. Logistic regression analysis showed being male (OR=1.48, P<0.001), Non-Hispanic Black ethnicity (OR=1.30, P=0.029) and having higher CCI score (OR=1.83, P<0.001) all significantly predicted poor FU. Conversely, younger age (OR=0.97, P<0.001), Hispanic ethnicity (OR=0.78, P=0.008) and lower BMI at surgery (OR=0.98, P=0.03) significantly predicted better FU (Table 1). **Conclusions:** Analysis here showed patient's ethnicity, gender, age, BMI, and Comorbidities should be considered to maximize post-operative aftercare attendance. Younger black men in particular may require more intensive follow-up efforts.

A5306

The Effect of Route of Anvil Insertion on Stricture Rates with Circular Stapled Gastrojejunostomy during Laparoscopic Gastric Bypass

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Background: Studies have reported a higher incidence of gastrojejunal (GJ) anastomotic strictures following laparoscopic gastric bypass (LRYGB) with the use of 21mm compared to 25mm circular stapler. We hypothesize that the rate of stricture formation may also be independently affected by the route of anvil insertion [trans-oral through staple line (trans-oral) vs. trans-gastric above staple line (trans-gastric)] following LRYGB.
Methods: Retrospective review of prospectively collected data on 877 consecutive patients who underwent primary LRYGB with circular stapled GJ for morbid obesity between July 2002 and January 2014. Univariate and multivariate analyses were used to study patient demographics, peri-operative details and outcomes. Predictors studied were age, gender, body mass index (BMI), co-morbidities and technical factors including operative time, anvil size and insertion route (studied in 4 groups:

trans-gastric-21mm, trans-gastric-25mm, trans-oral-21mm and trans-oral-25mm), and Roux-limb length. The primary outcome was GJ stricture; secondary outcomes were technical details and outcomes of endoscopic balloon dilation therapy, and percent excess weight loss (%EWL) at 12 months.
Results: 76 patients (8.7%) developed a GJ stricture. The diagnosis of a GJ stricture was made on average at 2.1±1.0 months after surgery. The highest stricture rate was observed for the trans-gastric-21mm group (23/145, 15.9%). Stricture rates were similar and lower for trans-gastric-25mm (49/622, 7.9%), trans-oral-21mm (2/47, 4.3%) and trans-oral-25mm (2/63, 3.2%) groups (TABLE). Independent predictors of stricture were trans-gastric-21mm group (OR 2.9, 95% CI 1.6-5.2; p=0.001); BMI (OR 1.5, 95% CI 1.1-2.0; p=0.02) and age (OR 0.977, 95% CI 0.956-0.998; p=0.04). Endoscopic dilation relieved symptoms in all patients. Mean stricture diameter was 7.5±2.7 mm. An average of 2±1.6 endoscopic dilations were required for treatment. %EWL at 1-year was highest for the trans-gastric-21mm group (67.3%) and similar for the other groups (TABLE). There was no difference of %EWL in patients with and without a stricture. Independent predictors of greater %EWL were lower BMI (p<0.001), absence of type 2 diabetes (p<0.001), trans-gastric-21mm group (p<0.001), younger age (p=0.015) and male gender (p=0.021).
Conclusions: Trans-oral 21mm anvil insertion is associated with a similar low stricture rate as trans-gastric and trans-oral 25 mm anvil. Anastomotic technique is one of the independent predictors of %EWL at one year after LRYGB. With the advantage of smaller abdominal wall wound needed for stapler shaft insertion and similar results, trans-oral-21mm maybe preferred over trans-gastric and trans-oral 25mm techniques.

A5307

Case Series of Metabolic Surgery in Patients with End-Stage Renal Disease

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Background: Obesity is a contraindication to transplantation. We reviewed 17 patients who underwent metabolic surgery before or after renal transplantation (RT) to determine outcomes of metabolic surgery in this cohort of patients.
Methods: Data from patients with end-stage renal disease were abstracted from our database of 3,500 bariatric surgical patients (1998-2014). Demographics, comorbidities, weight loss, as well as early and late morbidity and mortality were reviewed retrospectively.
Results: 5 men and 12 women aged between 35 and 76 years underwent Laparoscopic Gastric banding [LAGB] (4 patients) or Roux N Y Gastric Bypass [RYGB] (13 patients). 3 patients were post-RT and 14 patients were receiving hemodialysis. Follow-up after metabolic surgery was 1-8 years. In patients with ESRD weight loss was 120±72 lb, %EBWL was 60±23 at 35±23 months of follow-up. Weight loss in patients who underwent metabolic surgery after RT was 114±46 lbs; %EBWL was 65±23 at 53±37 months of follow up. Of the 14 patients receiving hemodialysis, 4 were placed on the RT list subsequent to weight loss; subsequently 3 patients received renal allografts. 3 patients achieved the prerequisite weight loss for RT but have not been listed. 1 patient died while on RT waiting list. 2 patients were lost to follow up, 1 developed rectal cancer and was removed from RT list. 3 patients received LAGB, 11 received RYGB. 3 LAGB mean weight loss 70lbs±30, one placed on to RT list. Of 11 RYGB 7 were placed on transplant list/transplanted. 3 patients who underwent metabolic surgery after RT maintained adequate graft function.
Conclusions: Metabolic surgery in patients with ESRD as well as renal transplantation is effective in inducing weight loss and improves access to the transplant waiting list.

A5308

Outcomes of revisional treatment modalities in non-complicated roux-en-Y gastric bypass patients with weight regain due to pouch and anastomosis enlargement.

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Background: Failure of weight loss and/or weight regain after laparoscopic Roux-en-Y gastric bypass (RYGB)due to lack of restriction has been reported in long-term follow-up

studies. The aim of this study is to determine the safety and effectiveness of reestablishing the restrictive component of the operation by trimming the pouch and/or anastomosis for pouch and/or anastomotic enlargement using a laparoscopic approach.
Methods: We retrospectively reviewed our prospectively collected database for all patients that underwent revisional surgery of a RYGB for weight regain or failure of weight loss.
Results: Between 2005 and 2011 a total of 121 patients underwent a revision of RYGB. Weight regain or failure of weight loss due to pouch and/or anastomosis enlargement was identified in 44 patients as the most common reason for revision. In 30 patients (66.7%) trimming of the pouch and/or anastomosis was performed as the only treatment modality. In addition to pouch trimming, remnant gastrectomy and re-routing of the Roux limb was done in 6 (13.6%) and 8 (18.1%) patients respectively. Percentage of excess weight loss (%EWL) at 48 months from the time of revision was on average 36.5% (±27.5). There was difference in EWL between the 3 groups (p=0.09). There was 1 (2.2%) complication in a patient that developed a left upper quadrant hematoma. There was no mortality in this series.
Conclusions: Trimming of the pouch and/or anastomosis seems to be a safe and effective treatment modality for patients with insufficient weight loss or weight regain after RYGB.

A5309

Pregnancy after Bariatric Surgery at Clínica Integral de Cirugía para la Obesidad y Enfermedades Metabólicas in Mexico City.

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Background: Weight gain and obesity are a growing threat to health, and obesity has been termed an epidemic. In Mexico, approximately 55% of women of at childbearing age (18–40 years) are either overweight or obese. Given the health risks of obesity, weight reduction is imperative to improve maternal health, pregnancy, and perinatal outcomes.
Methods: A retrospective, descriptive, comparative population-based study was conducted on women of reproductive age. These patients underwent bariatric surgery at Clínica Integral de Cirugía para la Obesidad y Enfermedades Metabólicas (CLIO) in a period of time covering October 2009 to August 2014. Maternal age, bariatric procedure, BMI before bariatric surgery, at labor and after pregnancy, comorbidities and type of delivery were analyzed. In addition, their child birth weight, Apgar score and perinatal mortality were collected.
Results: Thirteen pregnancies were reported from a population of 438 bariatric women at reproductive age. In all patients a Roux en Y Gastric Bypass was performed. Patients initiated pregnancy 25.1 months(3-48) after surgery with a mean age of 28 years(21-41). Eight(61.5%) of those pregnancies were unexpected. Mean BMI before bariatric surgery and at mean 1.5 years after pregnancy was 43.8 and 28.1 kg/m2, with a %EWL of 62+9. Twelve (92.3%) patients reached bariatric surgery success (%EWL > 50). Comorbidities (23% T2DM, 23% hypertension, 15% obstructive apena, 15% dyslipidemia) were under remission with no medications needed after surgery($p<0.005$), 23% had no comorbidities. Complications during pregnancy were: preclamsia and anemia in 2 patients(15%) and gastroesphageal reflux and gravidic hyperemesis in 1(7%) patient. One patient (7%) had preterm delivery secondary to anhidramnios. Three abortions were reported (23%) at 8, 12 and 16 weeks. One of those was caused by a Peterson's hernia requiring emergency laparotomy. All 10 pregnancies were ended with a Cesarean section. Mean newborn weight was 3.2 kg (2-4.1), with a mean Apgar score 8.6-9 and no newborn complications were reported at birth.
Conclusions: Few evidence-based recommendations for pregnancy following bariatric surgery are available. An adequate %EWL and BMI reduction was observed in most patients, except one who had a BMI of 36 (pre-operative BMI=52) and 48% EWL. The 2 kg preterm delivery with anhydramnios occurred in a patient with an abdominoplasty performed 2 years post-bariatric surgery. To avoid abdominoplasty and to close Petersen´s defect might be suggested in fertile females to avoid pregnancy complications. The cause of the 2 other abortions was not specified. No newborn complications were observed. Informational

programs on fertility, pregnancy, and contraception after bariatric surgery are required as unexpected pregnancies are frequently observed.

A5310 - WITHDRAWN

Management of biliary disease after Gastric Bypass : ERCP through Laparoscopic Gastric Access.

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A5311

Early Improvement of Metabolic Syndrome after Bariatric Surgery in a Hispanic Population

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Background: The Metabolic Syndrome (MS) has been identified as a multiplex risk factor for cardiovascular disease. The latest IFD (International Diabetes Federation) consensus identified central obesity as an essential component of MS plus any two of the following conditions: raised triglycerides (TGs), reduced HDL cholesterol, raised blood pressure (BP) or hypertension, and raised FGP or diagnosed T2DM. Bariatric surgery is an option to treat morbid obesity and grade II obesity with comorbidities, with excellent short and long term results for weight and comorbidities control. The role of such therapy for MS is less understood, with only few available studies. The Hispanic population has higher tendency for metabolic diseases related to obesity, in whom bariatric surgery could be an option, but no complete evidence has been obtained. The aim of this study is to describe the early improvement (6 months) of MS and its components in a Mexican population submitted to bariatric surgery. **Methods:** In this retrospective study we analyzed the charts of every patient diagnosed with MS that was submitted to bariatric surgery between October 2012 and October 2013 at a single Institution in Mexico City (Hospital General Tláhuac). MS diagnose was based on the IFD Consensus and only patients with complete charts during all follow-up were included. The primary objective was to analyze early improvement (< 6 months) of MS and its components. We included a demographic analysis, anthropometric, comorbidities and biochemical at 0, 1, 3 and 6 months. Secondary, weight loss and other parameters (not part of MS) were also analyzed. **Results:** Forty-nine patients were included in the study (48 LGBP and 1 LSG). Female sex comprised 83% of cases with a mean age of 39.7 years. Initial weight and BMI was 113 ± 21.1 kg and 42.2 ± 4 kg/m². Comorbidities observed were 3 in 38.7%, 4 in 36.7% and 5 in 24.4%. By type of component: Obesity (>30 kg/m²) in all patients, low HDL in 97.9%, raised TGs in 61.2%, raised BP or hypertension in 67.3% and raised FPG or DM2 in 59.1%. Improvement in every component was observed during the complete follow-up (Table 1 and 2) and starting since the first month. MS was observed in 51% at 1 month, 20.4% at 3 months and 10.2% at 6 months. At 6 months there were no patients with more than 3 MS components, with an overall percentage of change of -89.7%. EWL at 6 months was 65.8 ± 13.4%. The complete % of change was -93.1% for elevated FGP and DM2, -84.8% for elevated BP and hypertension, -76.6% for TGs, -51% for obesity and -31.2% for low HDL. (Figure 1 and 2). Raised FGP and raised BP were resolved in all cases. Significance improvement in Total Cholesterol, LDL Cholesterol, Uric Acid, HbA1c % and waist circumference was also observed (Table 1) **Conclusions:** Bariatric surgery showed significant improvement of MS and its components early after the procedure in a Hispanic population. Longer follow-up and more patients are required to determinate the final role of bariatric surgery in patients with this condition.

A5312

Use of a Wound Protector Device Decreases Wound Infections in Laparoscopic Roux-en-Y Gastric Bypasses

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Background: Wound infections are a potential complication of all surgical procedures. In laparoscopic Roux-en-Y Gastric bypass surgery (LRNY) the port site used for the end-to-end

anastomosis (EEA) is at higher risk for wound infections compared to the other standard laparoscopic port sites. We investigate to see if the use of a wound protector device (Alexis O, Applied Medical, Rancho Santa Margarita, CA) at the EEA port site would lead to a decrease in the number of wound infections specifically at the EEA site.
Methods: A retrospective review of our BOLD and MBSAQIP database comparing the outcomes of all laparoscopic Roux-en-Y gastric bypasses performed at a single institution (Spartanburg Regional Medical Center) by two experienced bariatric surgeons. The Incidence of wound infections at the EEA port site prior to the use of the wound protector and incidence of wound infections at the EEA port site after the institution of the wound protector were studied. Primary outcomes included superficial and deep space wound infection noted after surgery at the EEA port site. Secondary outcomes include reoperation for wound complications such as incision and drainage of abscess. Patients were well matched for BMI, comorbidities, age, and sex.
Results: From April 2011 until September 2012, 137 patients underwent RNY, of those 4.37% (n=6) had an EEA wound site infection. From September 2012, with the introduction of the wound protector, through April 2014 there were 206 patients who underwent RNY, and there was a 0.49% (n=1) EEA site wound infection. There was a statistically significant decrease in the incidence of EEA site infections in the wound protector group (p=0.02).
Conclusions: The use of a wound protector device significantly decreases wound infections and complications at the EEA site.

A5313 – WITHDRAWN
Robotic Assisted Roux-en-Y Gastric Bypass: A Review of Our Experience
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A5314
Laparoscopic Roux-en-Y gastric bypass in patients over the age of 60 years
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Background: The prevalence of obesity is increasing even in older patients. Bariatric surgery is often considered more rosky in this group, and not necessarily associated with the same benefits as in younger patients. In France, guidelines recommend to assess indication for surgery based on comorbidities and physiological age.The objective is to present results of RYGBP performed in older patients in three European bariatric centers.
Methods: Retrospective review of propectively collected data from all patients aged 60 or more operated between 1999 and 2013.
Results: 137 patients (96 women and 41 men) with a mean age of 62.6 years were analysed, including 24 who had had a previous procedure. There was no mortality. The overall post-operative was 6.5%. The mean duration of follow-up was 50 months. The mean EWL was 50.4% after 6 months, 69% at 1 year and 67.4% at 5 years. The mean BMI decreased from 46.6 preoperatively to 35.4 after 1 year and 32.4 after 5 yeras. There was a marked improvement in several comorbidities, espicially cardiovascular risk factors. Quality of life improved greatly, despite the fact that osteoarticular problems were less affected by weight loss than metabolic factors.
Conclusions: Laparoscopic RYGBP is very safe and effective in selected patients, even beyond the age of 60. In this group, morbidity is not higher than in younger patients, and results are very acceptable, showing a favorable risk/benefit ratio. There is no reason to deny bariatric surgery in older patients unless operative risk is deemed prohibitive.

A5315
Gastric Duplication Cyst During Laparoscopic Roux-en-Y Gastric Bypass
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*** Presentation under consideration for the John Halverson Young Investigator Award**

Background: Alimentary tract duplication cyst are rare, even more so are gastric duplication cyst. The literature mainly contains case reports regarding this pathology. This is the first report of surgical management of gastric duplication during a bariatric operation. **Methods:** Intraoperative recording of excision of gastric duplication cyst during Roux-en-Y gastric bypass was edited to demonstrate safe surgical technique and illustrate a rare pathology. Included are patient demographics, pathology reports, 2 month follow-up date, and background information on gastric duplication cysts. **Results:** Total operative time was 2.5 hours. Estimated blood loss was 50cc. Cytology of cyst aspirate was benign. Pathology of the specimen was consistent with gastric duplication cyst. At two month follow-up, the patient has not had any complications. She has improvement of hypertension, BMI, and diabetes. **Conclusions:** Laparoscopic management of gastric duplication cyst during gastric bypass is safe. Short term follow-up demonstrates expected benefits of bariatric surgery.

A5316

Gastric bypass surgery - Patient experiences of psychosocial and physical perspective

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Background: Obesity is associated with increased mortality. Gastric bypass surgery helps obese patients to lose weight and to better physical health. We know less about how it affects their mental health and how they are perceived psychosocial changes that occur in the new living situation. **Methods:** : Literature review of ten qualitative and quantitative research articles, peer - reviewed and original. Criteria for inclusion in the data collection was research written in English or Swedish, published 2000 or later focusing on men and women over 18 who had undergone gastric bypass surgery. Keywords: gastric bypass, psychosocial changes, perception, experience.
Results: The study revealed concerns regarding nutrition, for example way of eating, improper diet, not achieving weight loss goal and fear of complications. Several reported episodes of binge eating and/or eating at nighttime one year after surgery. Participants in the literature review who had received professional help regarding their eating disorder before surgery, had better postoperative quality of life and reduced eating problems. Majority of the participants were satisfied with their body shape after the weight loss. Quality of life increased in terms of ability to work, relationships, respect, acceptance in society, together with positive changes in partner relationships and sexuality. In the study it was also found that some people felt unattractive and grotesque and socially stunted by all the excess skin
Conclusions: The perceived quality of life was improved or was good, although there were exceptions. Participants with eating disorder needed more education, information and support to improve their psychosocial experience and everyday life. More research regarding cognitive therapy and eating disorder is needed.

A5317

Learning Curve of Robotic-assisted Roux-en-Y Gastric Bypass

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Background: The use of robotic-assisted RYGB (RARYGB) has increased over recent years, but little data is available on how robotic-assisted technique affects operative time and surgical outcomes. Prior studies have reported learning curves for this technique ranging widely between 14 and 100 cases. The purpose of this study is to evaluate the learning curve for RARYGB in our high-volume bariatric practice. **Methods:** This study utilized a retrospective sample of the first 150 RARYGB operations performed by a single surgeon and 150 laparoscopic RYGB (LRYGB) performed during or immediately prior to the first robotic case by the same surgeon. Initial 5 robotic cases were proctored and simulation was used prior to and during early case experience. Cases were divided chronologically into 3 groups of 50 (9/2010-10/2011, 10/2011-8/2012, 8/2012-6/2013) and compared on operative time, complications (30-day and overall), reoperations, and length of hospital stay (LOS). Revisional procedures were excluded. A one-way ANOVA was used and Tukey's HSD posthoc tests to examine group differences in

operative time, estimated blood loss, and LOS. When homogeneity assumptions were violated, Welch ANOVA and Games-Howell post hoc tests were used. Complications were categorized as early (≤ 30 days) or late (>30 days) and major or minor (based on prior published criteria).
Results: Demographics for the RARYGB and LRYGB groups were, respectively: Average age 44.4, 41.3; BMI 46.8 kg/m2, 48.8 kg/m2. Both groups were 81% female. Operative time (incision to skin closure) shows a significant difference across the 3 groups (p<.001). Games-Howell posthoc test showed that the first group was significantly longer in operative time (mean=162.8) compared to second (mean=118.5, p<.001) and third groups (mean=110.1, p<.001). There was no difference in operative time between the second and third groups (p=.10).Average blood loss was not clinically significant in both arms of this study and therefore not analyzed (<50cc in each arm). There was no difference in length of stay among the 3 groups (p=.36).Within the first 50 patients, 4 cases had to be converted to an open technique due to inadequate exposure due to hepatomegaly (n=2), rotation of the biliopancreatic limb (n=1) and dense adhesions between loops of small bowel not amenable to laparoscopic enterolysis (n=1). There were no conversions to open technique in the subsequent 100 cases, due to increased use of sleeve gastrectomy as the procedure of choice in patients with multiple prior abdominal surgeries. There was one leak that occurred in the first 100 RARYGB patients at 9 days post-surgery and one in the LRYGB group at 10 days post-surgery. Overall complications are reported in Table 1.
Conclusions: In this single-surgeon series, the learning curve inflection with regards to operative time occurs within the first 50 robotic cases, with shorter operative times after 100 cases. The use of robotic assisted technique results in similar operative times and complication rates when compared to conventional laparoscopic techniques. This study is limited by lack of randomization and ability to control for overall surgeon experience.

A5318
Laparoscopic gastric bypass in the super obese portends higher postoperative complications but more effective excess weight loss than laparoscopic sleeve gastrectomy

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Background: Bariatric surgery has been established as the most effective long-term treatment for morbid obesity. The full extent of the beneficial impact bariatric procedures have on the super obese (BMI>60) have traditionally been understudied.
Methods: We performed a retrospective review of super obese patients treated at our institute between 2008 and 2013. We identified patients who underwent a laparoscopic gastric bypass (GBP) or sleeve gastrectomy (SG). The primary end point for this study was excess weight loss (EWL) at 1, 3, and 6 months. Secondary end points included procedure length (PL), length of stay (LOS), diabetes management and postoperative complications. Data were compared using Chi-square analysis, Wilcoxon signed-rank test, and Fisher's exact test.
Results: We identified 135 super obese patients who underwent bariatric surgery (93 GBP, 42 SG) at our institute from 2008-2013 with a median follow up of 49 months. EWL >30% for patients in the GBP group was 3.9%, 29.7%, and 69.4% at 1, 3, and 6 months, respectively; while patients in the SG group demonstrated an EWL >30% of 4.2%, 25.0%, 59.1% at 1, 3, and 6 months, respectively. Procedure length was 124+49 minutes for the GBP group and 98+51 minutes for the SG group (p = 0.005). Length of stay was on average 3.0 days (range 1-21) for the GBP group and 3.4 days (range 1-13) for the SG group (p = 0.41). Patients experienced a decrease in their hemoglobin A1C level by 10% for the GBP group and 9% for the SG group at 1 year (p = 0.89). Postoperative complications were seen in 15.1% of GBP patients and 4.8% of SG patients.
Conclusions: Bariatric surgery is feasible in the super obese with comparable outcomes in PL and LOS. Postoperative complications were observed in higher frequency among super obese patients who had a GBP. However, the benefits of EWL may justify the perioperative risks involved with the procedure.

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A5319

Risk factors associated with anastomotic ulcer and its associated complications following laparoscopic Roux-En-Y gastric bypass

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Background: Anastomotic ulceration and its associated complications following Roux-En-Y (RYGB) surgery are common; however, the exact pathogenesis of ulceration is unknown. Various risk factors have been associated with the development of marginal ulcers such as H. pylori infection, Non-Steroidal Anti-inflammatory Drugs (NSAID), steroid and tobacco use but these have been inconsistently demonstrated in the literature. Co-morbid conditions such as hypertension and diabetes have also been implicated as risk factors for marginal ulcer development. The aim of this study is to find associated risk factors for the development of marginal ulcers, strictures, and perforated ulcer disease at our institution. **Methods:** Retrospective chart review was conducted on consecutive patients who underwent laparoscopic RYGB at our institution from December 2007 to June 2010 to determine the preoperative presence of acid dyspepsia and acid suppression therapy and the postoperative presence of smoking, NSAID or steroid use and compliance with ulcer prophylaxis. Intraoperative biopsies were obtained to determine H. pylori status on histology. Incidence of ulcer visualization, perforation, and stricture were obtained from a prospectively collected database. Fisher's exact test was used for analyzing associations between discrete groups. Multiple logistic regression was used to assess associations between anastomotic ulcer complications and potential risk factors. **Results:** A total of 728 patients underwent laparoscopic RYGB at our institution between December 2007-June 2010. The median follow-up time of our patients was 729 days; 78% of patients had >1 year follow-up. A total of 694 had conclusive H. pylori histology results. A total of 115 (16.6%) patients developed anastomotic complications including marginal ulcer (8.6%), stricture (4.2%), or perforation (3.7%). The median time to presentation of strictures was 71 days. The only factor predictive of stricture development is Diabetes Mellitus (p=0.04). The median time to presentation for perforation was 562 days; and the only predictive factor for perforation is steroid use (p=0.001). When all anastomotic complications were taken together (ulcer, stricture, perforation), the use of steroids (p=0.02) and H. pylori negative status (p=0.04) was associated with development of marginal ulcer and its related complications. **Conclusions:** Anastomotic ulceration can present as symptomatic ulcer, stricture, or perforation. However, each type of complication has a unique time course. Strictures tend to present early in the postoperative course and are associated with Diabetes Mellitus. Perforations occur later and are associated with steroid use. H. pylori positivity appears to correlate with a lower incidence of marginal ulcer and its associated complications.

A5320

Prevalence of Internal Herniation after Laparoscopic Gastric Bypass in Denmark

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Background: Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) is the most common surgical treatment for morbid obesity in Denmark. Patients are operated in either of the seven public and three private Bariatric centers. Internal herniation (IH) is suggested to be a major late complication after LRYGB due to persistent mesenteric defects. However, the prevalence of IH is still not known in Denmark.The aim of this study is to give an estimate of the prevalence of IH after LRYGB when mesenteric defects were not closed. **Methods:** We performed a retrospective review of patient data based on the Danish National Patients Registry. All patients operated with LRYGB were identified for the observation time from 2006 to 2011. During follow-up from January 2006 to May 2013 we registered all relevant abdominal operations performed subsequently. The registry was searched for the following operation codes: KJAG*, KJAW*, KJAK*, KJFL*. All operation and patient charts were scrutinized for possible cases of IH including cases of intermittent internal herniation

(IIH). The findings were coded based on standardized definitions.
Results: From January 2006 to December 2011, 12455 patients underwent a LRYGB. In 615 patients (4.9%) an abdominal operation was performed, subsequently and 400 patients (3.2%) were operated due to IH or IIH. The mean time until the registered operation for IH/IIH occurred was 471 (8-1897) days with a follow-up time of 24 to 88 months. In 173 patients (43.3%) IH was caused by herniation in the Petersen's defect and in 118 patients (29.5 %) at the jejuno-jejunal anastomosis. In 8 patients (2%) the location for IH was not described in detail. In 101 patients (25.3%) no bowel was strangulated, however the findings were related to IIH.Eighteen patients (4.5%) were operated at a general hospital, 199 patients (49.7%) were referred to one of the public bariatric centers. 183 patients (45,8%) were primarily admitted to one of the public bariatric centers.In 393 patients (98.3%) the procedures were initially laparoscopic. In 52 patients (13%) the laparoscopic procedures were converted to open surgery. Seven patients (1.7%) were initially operated with an open laparotomy.
Conclusions: In 2006 to 2011 the mesenteric defects were not closed during the initial LRYGB operation in Denmark. The subsequent prevalence of IH or IHH was estimated to 3.2% during a follow-up time of 24 to 88 months.

A5321

Predictors of Binge Eating in a Bariatric Sample: Disinhibition as a Mediator of the Relationship between Depression and Binge Eating.

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Background: Current and prior psychopathology is relatively common in patients seeking bariatric surgery; research indicates that approximately one third of bariatric candidates will be diagnosed with major depressive disorder in their lifetime. Binge Eating Disorder (BED) affects a large proportion of this same population with estimates ranging from 10-35%. Few studies have examined the relationship between depression and binge eating in a bariatric sample, despite evidence indicating high co-morbidity and the potential for poorer surgical outcomes at long-term follow-up. Behavioral disinhibition may represent an important variable in determining the relationship between depression and binge eating.
Methods: This study used a naturalistic, retrospective design to investigate the relationship between binge eating and depression within a sample of 119 patients seeking bariatric surgery at a large university medical center. Patients completed a standard psychological evaluation to determine appropriateness for bariatric surgery as part of routine clinical practice, which included measures assessing depression (Beck Depression Inventory), behavioral and cognitive components of eating (Three Factor Eating Questionnaire; TFEQ). Binge eating was assessed with both clinician-rated episodes of binge eating per week and the Binge Eating Scale (Gormally et al., 1982).
Results: Patient mean age was 47; sample was predominantly female (82.4%), white (96.6%) and married (57.1%). Depression was a significant predictor of behavioral disinhibition. Behavioral disinhibition was a significant predictor of binge eating, as measured by both clinician rated binges per week and the Binge Eating Scale. Using a Baron and Kenny (1986) approach to mediation, the relationship between depression and binge eating was partially mediated by behavioral disinhibition but only when binge eating was measured by clinician rated binges per week.
Conclusions: The relationship between depression and binge eating may be partially explained by behavioral disinhibition. Future studies should examine the role of behavioral disinhibition in predicting high risk post-surgical behaviors in depressed patients seeking bariatric surgery.

A5322

Characterization of the Frequency and Intensity of Dumping Syndrome in Mexican Obese Patients after Roux-en-Y Gastric Bypass

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Background: Dumping syndrome (DS) is a frequent side effect of bariatric surgery. This has been reported in up to 75% after Roux-en-Y Gastric Bypass (RYGB). DS occurs as a consequence of hypovolemia or hypoglycemia due to rapid gastric emptying. Since data in the literature about the frequency and severity of dumping syndrome after bariatric surgery is limited we aimed to characterize DS in a cohort of obese Mexican patients who underwent RYGB in an 8-year period. **Methods:** A self-report questionnaire was sent by email to 604 operated patients. The questionnaire explored early and late dumping symptoms, using the Dumping Symptom Rating Scale (DSRS) version 1.1 (Obes Surg. 2013; 23:740-55) with the addition of 4 symptoms (dizziness, bloating, unconsciousness and irritability) from the Arts questionnaire for Dumping Syndrome (Clin Gastroenterol Hepatol. 2009; 7:432-7). The instrument finally included 16 closed questions and 2 open questions exploring the frequency, severity and characteristics of DS. Symptoms were graded using a Likert scale. Univariate and bivariate analysis were performed to assess variable´s distribution and potential statistical associations. Any p value ≤0.05 was considered as statistically significant for a two-tied analysis. **Results:** One hundred eighty five patients (66% female) responded the questionnaire. Before surgery, mean age was 41.6±11.2 years and BMI was 42.7±6.3 kg/m2. RYGB was performed to all patients. In a mean follow-up of 4.4±2.5 years, 172 (92.9%) patients referred at least one symptom of DS. The most frequent symptoms associated to early DS were abdominal distension (36.9%), diarrhea (34.4%) and fatigue (28.6%) and the most frequent symptoms associated to late DS were diarrhea (32.8%), cold sweats/paleness (15.3%) and fainting-esteem/shaky (13%). The number of patients reporting these symptoms as severe or extremely severe was 12/172 (6.9%) for abdominal distention, 7/175 (4%) for fatigue, 7/170 (4.1%) for the need to lie down and 2/170 (1.2%) for diarrhea. Abdominal distention (22.3%), fatigue (19.8%) and palpitations (14.7%) were symptoms that more commonly occurred several times per week. Whereas abdominal distention (5.4%), fatigue (4.2%) and cold sweats/paleness (4.2%) occurred several times per day. Patients reported to avoid sweet and fatty foods to prevent abdominal symptoms 64%, vasomotor symptoms 18% or late dumping symptoms 4%. There was no correlation between age, gender, BMI and time from surgery and the severity or presence of the symptoms
Conclusions: DS was highly frequent in our obese population undergoing RYGB. Abdominal distention was presented with more severity, followed by the need to lie down and fatigue. Abdominal distension was also the most frequent symptom. Age, gender, BMI and the time from surgery did not show any statistical correlation with the occurrence and intensity of DS.

A5323

Bariatric Surgery Outcomes in Patients with Psychotic Disease: a Case-Control Study

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Background: The indications and contraindications for bariatric surgery continue to evolve as we learn more about the risks and benefits for specific patient populations. Patients suffering from psychiatric diseases with psychotic features are at high risk of morbid obesity, largely due to the effects of anti-psychotic medications. Except for a few case reports, there are no studies addressing weight loss surgery outcomes in patients with a history of psychotic features (i.e., delusions and auditory or visual hallucinations). The aim of this study was to assess morbidity, mortality, psychiatric and weight loss outcomes in bariatric subjects with a history of psychotic disease. **Methods:** We retrospectively identified patients who had bariatric surgery and a psychiatric diagnosis with psychotic features (bipolar disease with psychotic features, major depressive episode with psychotic features, schizophrenia and schizoaffective disorder). Patient demographics, psychological assessments, perioperative parameters and follow-up data was extracted and analyzed. The study cohort was compared 3:1 to a control group of bariatric patients without psychotic disease matched for age, sex, type of procedure and body mass index (BMI). Effectiveness of surgery was measured by calculating percent excess weight loss (%EWL) based on a BMI of

25 kg/m2.
Results: We identified 11 patients with psychotic disorders (4 bipolar with psychotic features, 3 schizophrenia and 4 schizoaffective disorder). The cohort (4 male:7 female) had a mean age and BMI of 45.8±11.7 years (control, 46.1±10.3; p=0.9) and 57.8±13.9 kg/m2 (control, 57.3±12.0; p=0.9), respectively. All patients were on psychiatric medications (median of 3), with 90.9% (n=10) taking anti-psychotics. Five patients previously attempted suicide. Nine subjects had laparoscopic Roux-en-Y gastric bypass and 2 had sleeve gastrectomy. There were no intraoperative complications or mortality, but 2 perioperative complications occurred (respiratory failure and rhabdomyolysis). There was one brief readmission for nausea, but no psych-related admissions or reoperations. The only long-term complication was a marginal ulcer 2 years after RYGB. At a mean follow-up of 13.8 months (median, 13; control mean, 13.1; p=0.8), the study group achieved a %EWL of 44.6±23.8%, which was lower than the %EWL experienced by the control group (50.1%; p=0.5), but this was not statistically significant. There were no differences in length of stay (3.7 vs. 3.0; p=0.3), 60-day morbidity (18.2% vs. 12.0%; p=0.6), late complications (9% vs. 6%; p=0.7) or readmission (9% vs. 6%; p=0.7). Three patients had psychiatric medication dose reductions and 5 had reduction in number of psychiatric medications.
Conclusions: While many patients with psychotic features will not be candidates for bariatric surgery, intensive multidisciplinary assessment and appropriate screening can result in psychiatrically stable candidates for weight loss surgery. While further research is needed, our data suggests that the outcomes are similar to those without psychotic features.

A5324
The Value of Drains in Primary Roux En Y Gastric Bypass
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Background: Many surgeons routinely place suction drains during bariatric operations. Because there is a paucity of data related to outcomes, the value of prophylactic drains in bariatric surgery remains controversial.
Methods: The records of 2493 consecutive primary Roux en Y gastric bypasses (RYGB) including 1574 open (ORYGB) and 919 laparoscopic (LRYGB) were reviewed. Suctions drains were placed in the left upper quadrant of all LRYGB's and not used after ORYGB. The exit site of the drain was changed from left to right upper quadrant after the first 52 cases. The first 73 LRYGB patients were discharged with the drains. The drain was removed on the day of discharge on the remaining 846 patients. A chi square comparison examination was done between the drained LRYGB group and the un-drained ORYGB.
Results: There were 8 gastric anastomotic or staple line leaks (0.5%) in the open un-drained patients. All but one leak in the un-drained group require reoperation. Two GI tract erosions that require reoperation were caused by drains. There were 9 other gastric anastomotic or staple line leaks (1.0%) in the drain LRYGB patients. Four leaks in drained patients required emergency operations. The remaining 5 patients were successfully treated non-operatively. There were no drain related complications after relocation of the exit side and removal of drains prior to discharge. The chi square evaluation demonstrated that there was no significant difference in the number of leaks between the drained LRYGB and the un-drained ORYGB.
Conclusions: Drains were associated with more leaks and caused 2 leaks that require reoperation. Drains occasionally obviate reoperation for leaks which is their primary value.

A5325
Single Stage Precise Laparoscopic Roux-en-Y Gastric Bypass in the Treatment of Asian Super Obese Patients
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First Affiliated Hospital of Jinan University[1] First Affiliated Hospital of Jinan Unive[2]

Background: Number of obese patients in Asia is increasing, along with the rapid development of the economy and improvements in living

standards. Asian population is unique in diet, lifestyle, gender, age and geographical differences compare with western countries. The aim of this study is to investigate the surgical techniques and clinical outcomes of precise laparoscopic Roux-en-Y gastric bypass (PLRYGB) in treatment of super obesity with BMI≥50, and to provide clinical evidence for surgical treatment of Asian super obesity. **Methods:** Clinical data was collected in consecutive patients underwent PLRYGB in the First Affiliated Hospital of Jinan University between September 2011 and March 2013. It was divided into two groups (12 patients in super obesity group with BMI≥50, and 17 patients in ordinary obesity group with BMI<50 as a control). Patients' demographics, operation parameters, surgical outcomes and postoperative complications was observed and analyzed in 12~24 months follow-up. All of these patients met the minimal criteria for bariatric surgery proposed by the Asia-Pacific Bariatric Surgery Group. Only the patients completed at least 12 months follow up were included in this study.
Results: No any conversion to open operations or deaths. The age, preoperative weight and BMI were (ordinary obesity group vs super obesity group): 34.7 ± 10.3 years old, 119.9 ± 16.7 kg, 39.7 ± 5.1 kg/m2; 26.2 ± 7.2 years old, 175.8 ± 27 kg, 58.2 ± 4.8 kg/m2, respectively(P<0.05). Compare with baseline, the weight and BMI decreased gradually and reach the peak one year after the operation in both groups: 82.5±12.0 kg, 27.3±3.1 kg/m2; 112.1±22.6 kg, 37.0±4.9 kg/m2, respectively(P<0.01). %EWL and preoperative BMI were in a linear negative correlation (r = -0.415, P=0.025). %EWL in 12 and 24 months of the two groups were: 68.3 ± 15%, 58.7 ± 9.7%; 65.5 ± 12.2%, 58.3 ± 13.7%, respectively(P<0.05). The %EWL in super obesity group was lower than that in the ordinary obesity group(F=6.19, P=0.02). Co-morbidities including fatty liver, hypertension, T2DM, hyperuricemia, sleep apnea and hyperlipidemia were cured or relieved after one year of operation. Mild postoperative complications were observed in the two groups, including 9 cases of hair loss and 3 cases of dumping syndrome. Occurrence of loose skin after surgery is higher in super obesity group(6 cases, 50%) than that in ordinary obesity group (2 cases, 11.8%), P=0.038. **Conclusions:** PLRYGB focus on details, precise operation and standardized treatment. It is safe and feasible as a single stage operation for Asian super obese patients. The %EWL in ordinary obesity group is higher than that in super obesity group after one year of operation. Preoperative weight loss may be favorable in overall weight loss outcomes. Occurrence of loose skin after surgery is higher in super obesity group, postoperative body contouring surgery is needed to prevent related complications. Education in prevention of obesity and metabolic diseases in young population should be enhanced as there is a growing number in young obese patients.

A5326

Routine closure of mesenteric defects in retrocolic antegastric laparoscopic Roux-en-Y gastric bypass: no internal hernia developed in 140 consecutive cases5122

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Background: Laparoscopic Roux-en-Y gastric bypass (LRYGB) is increasingly a common procedure of choice in bariatric surgery. Internal hernia after LRYGB is a serious complication leading to rise in patient's morbidity and mortality. But the closure of the mesenteric defects remains a subject of controversy. The aim of this study is to evaluate the results of routine closure of mesenteric defects in retrocolic antegastric LRYGB.
Methods: Clinical data of patients underwent LRYGB in the First Affiliated Hospital of Jinan University between June 2011 and April 2013 were reviewed. All the patients had retrocolic and antegastric anastomosis as a standard procedure with linear stapling. The jejunojejunal anastomotic mesenteric defect and Peterson's defect were routinely closed by interrupted permanent suture. The patients were follow-up at 1, 3, 6, 12 months and annually thereafter.
Results: 140 LRYGB were performed. There were 101 males and 39 females with mean age of 32.3 years (range, 18-59), mean preoperative BMI 43.6 (range, 28.7-76.2), mean operating time 138 minutes (range, 105-140). All the patients had at least 12 months follow-up. Percentage of excess weight loss in 1, 3, 6, and 12 month after operation were 26.4±8.6%, 53.3±6.7%, 75.3±7.9%, 78.5±8.5%, respectively.

No any patient (0%) developed internal hernia postoperatively. No any severe complications and death cases were observed. **Conclusions:** Routine closure of mesenteric defects in LRYGB does not increase much operating time. There are patient benefits if the mesenteric defects are properly closed. Randomized control trial is needed to verify the long term outcomes.

A5400

Recurrent abdominal pain after laparoscopic proximal gastric bypass: A rare cause, case report.

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Background: Fortunately, recurrent abdominal pain after laparoscopic proximal gastric bypass, roux-en Y (LPGBY), is uncommon. However, when persistent, it affects the patient's quality of life and may be incapacitating. Although may be self-limiting, serious causes should be excluded first. These usually include internal hernias, abdominal adhesions as well as other rare or non-surgical causes. we report two cases presented with recurrent left upper abdominal pain after LPGBY caused by retrograde intestinal movements at the longer than usual, un-anastomosed terminal end of the biliary limb. **Methods:** The patients were 38 years old lady and 31 year old gentleman. Both had LPGBY. Initial BMI at operation was 58 and 47 kg/m2 respectively. Time to presentation since operation was 10 and 6 weeks respectively. Both had left upper abdominal recurrent severe pain, spasmodic in nature. Both patients had all regular bloods and abdominal CT with no abnormal findings. Decision to perform diagnostic laparoscopy was resorted to after failure to detect or control the cause. **Results:** In both cases, the terminal un-anastomosed end was longer than 3 cm. clear retrograde intestinal movements with long spasms were observed at the biliary limb end. Trimming of the long terminal end to 1-1.5 cm from the anastomotic site was performed. Pain disappeared postoperatively in both cases thereafter.
Conclusions: Long un–anastomosed end of the biliary limb may show dysmotility features that may cause recurrent cumbersome pain. Although rare, this should be sought for as a cause of pain when other commoner causes do not exist.

A5401

Low failure to rescue bariatric surgery patients with major postoperative occurrences: a marker of the national wide bariatric care status.

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Background: Failure to rescue (FTR), defined as case-fatality in patients with a postoperative complication, represents a measure of quality of care. Multiple assessments of FTR in gastrointestinal surgery (GIS) have been previously performed; the FTR for complex GIS ranges between 2-20%. The aim of this study was to assess the FTR in bariatric surgery. **Methods:** The ACS-NSQIP database from 2006 to 2011 was queried using Current Procedural Terminology codes for bariatric surgery and diagnoses for morbid obesity. Data on patient demographics, baseline comorbidities, procedural events, and postoperative occurrences were analyzed. 30-day mortality and morbidity were assessed. Median (interquartile range) and frequencies are reported.
Results: We identified 71,694 bariatric surgery patients. Overall morbidity was reported in 4.8% and major morbidity in 2.1%. FTR was 2.1% and 4.7% for any and major occurrences, respectively. FTR for gastrointestinal leak and pulmonary embolism (PE) was 2% and 5.2%, respectively. Patients with major FTR, had more frequent vascular comorbidities (85% vs 67%, p=0.001), cardiac (17% vs 7%, p=0.001), pulmonary (14% vs 4%, p<0.001), diabetes (60% vs 40%, p=0.001), steroid use (5.6% vs 1.4%, p=0.027), ASA 3 or 4 (89% vs 76%, p=0.012), and BMI>50 (65% vs 36%, p<0.001). There were differences in gender (male: 43% vs 28%, p=0.005) and age [54 (45-59) vs 49 (39-57), p=0.001). There was no difference in FTR based on resident participation (2.1% vs 2% for overall FTR, p=1.0; 4.3% vs 4.7% for major FTR, p=0.719; 1.9% vs 1.9% for leak-related, p=1.0; 3.3% vs 7.5% for PE-related, p=0.445).
Conclusions: The FTR in bariatric patients in the US is very low, despite the fact that these are major gastrointestinal procedures. This is an indication of the high quality of care bariatric patients receive in a nationwide level. The

difference between the FTR for bariatric surgery compared to other complex GIS may be suggestive of the beneficial effect of a multidisciplinary "center of care" approach.

A5402

The Effects of Gender on Complications and Outcomes of Totally Robotic Roux-en-Y Gastric Bypass

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Background: Data from a large (>10,000) Roux-en-Y gastric bypass (RYGB) database show gender differences in surgical outcomes, with males having greater co-morbidities prior to surgery and a higher postoperative rate of complications, anastomotic leaks, and mortality (Stroh et al., Obes Surg 2014). Performance of RYGB using the da Vinci surgical system may reduce complications, including the risk for anastomotic leak. To our knowledge, there are no studies that have examined the effects of gender on surgical outcomes with totally robotic Roux-en-Y gastric bypass (TR-RYGB). The purpose of our study was to identify gender-related differences in TR-RYGB outcomes. **Methods:** The study population included 730 female and 270 male patients who received a TR-RYGB at a single-surgeon practice between the years 2009-2013. Data analyzed included patient demographics, perioperative complications and conversions, operative time, length of hospital stay, complication and reoperation rates during the hospital stay (In-stay), 30-day readmissions and reoperations, and 30- and 90-day mortality. Weight loss success was determined from changes in % EWL and % change in BMI at postoperative months 6, 12, 24, 36, and 48. **Results:** Male bariatric candidates presented with a higher BMI than female patients (49.4 vs. 48.1, p=0.02) and were significantly (p=0.0003) older (51.6 vs. 48.4 y, respectively). ASA score for the males were significantly (p<0.0001) higher than for the females and total length of surgery (min) was longer (131.5 vs. 123.4 min, respectively, p=0.0004). Perioperative complications were low for both males (n=1) and females (n=3) and there was only one operative conversion (female). Length of hospital stay did not differ significantly between the male and female patients (2.34 and 2.30, respectively) nor did complication rates (2.59% for males, 2.87% for females) or reoperations (2.59% for males, 2.74% for females) during the hospital stay. Readmission and reoperation rates during the first 30 postoperative days did not significantly differ (chi sq p > 0.05) with regard to gender. There were no (0%) anastomotic leaks for either male or female TR-RYGB patients. Mortalities that occurred within the first 30 (n=3) and 90 days (n=1) were females. With regard to weight loss, there were no significant (p>0.05) gender-related differences in % EWL or % changes in BMI at postoperative months 6, 12, 24, 36, or 48.
Conclusions: Our data suggest that with TR-RYGB male gender is not an increased risk factor for perioperative or postoperative complications (including anastomotic leaks) or a contributing factor to weight loss success.

A5403

Readmission after Roux en Y Gastric Bypass (RYGB): From Bad to Worse

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Background: Studies of large administrative databases have demonstrated that readmissions drive up health care costs, negatively impact reimbursement and adversely impact patient outcomes. However, these data sets have little information about the principal causes of readmissions. The aim of our study was to identify the underlying factors associated with readmission after RYGB. **Methods:** Demographic and outcomes data were collected prospectively using a system-wide electronic medical record for all patients who had undergone initial RYGB between May 2007 and April 2012. Patients who were readmitted within 30 days of discharge were compared to those who were not readmitted. Complications were analyzed using Clavien score (minor=1,2, major=3,4,5). Outcomes were compared using Student t test. **Results:** A total of 2059 patient who underwent RYGB were analyzed. All patients had follow up

data available 30 days after discharge. The rate of readmission for all patients was 5.5%. The mean length of stay (LOS) for all patients at index admission was 2.4 days which was significantly shorter than the mean LOS during readmission of 5.1 days ($p<0.001$). ICU stay was required in 10% of readmissions and 26% of patients were re-operated on during readmission. Minor complications occurred in 69% of patients during readmission and major complications in 36% of these patients. Twenty-two percent of readmissions were for less than 24 hours and 68% of these patients had nausea/dehydration as their only complication. The Table compares demographic factors and outcomes during the index admission of patients who were subsequently readmitted within 30 days of discharge vs. those patients who were NOT later readmitted.
Conclusions: We must understand the root cause of readmissions after RYGB if we are to prevent them. Our study demonstrated that known preoperative risk factors such as age, male gender, body mass index, comorbid conditions and number of medications were not significantly associated with readmission. Perioperative factors during the index admission (complications, reoperation, ICU stay and prolonged LOS) all were significantly associated with readmission. The readmission LOS was significantly longer than for index admission. Readmitted patients were also more likely to have complications, an ICU stay and reoperation. There was a highly significant association between readmission and mortality. Twenty-two percent of patients were readmitted for less than 24 hours. Two-thirds of these patients had nausea/dehydration as their only complication and represent an opportunity to prevent readmission through outpatient services. Further analysis controlling for specific co-morbid conditions and perioperative factors may allow us to develop more focused interventions to prevent readmission after RYGB .

A5404

Effects of Hemoglobin A1c Levels on complications after Sleeve Gastrectomy and Roux-en-Y Gastric bypass

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Background: Restrictive and malabsorptive procedures are commonly performed in the United States for the treatment of morbid obesity and metabolic syndrome. However many procedures are delayed or not conducted due the theoretical negative effects of chronic hyperglycemia on post-operative recovery and rates of complications. The aim is to retrospectively examine the preoperative hemoglobin A1c (HbA1c) levels in patients undergoing Sleeve Gastrectomy (SG) and Roux-en-Y-Gastric Bypass (RYBG) and correlate to post-operative complications
Methods: A single center, retrospective analysis of all SG and RYGB conducted between 2008 to 2013 were analyzed. Risk factors including preoperative HbA1c level, history of asthma, coronary artery disease, congestive heart failure, cholelithiasis, chronic obstructive pulmonary disease (COPD), diabetes, gastroesophageal reflux disease (GERD), home oxygen use, hyperlipidemia, hypertension, liver disease, peptic ulcer disease, peripheral vascular disease, renal disease, rhythm disorder, sleep apnea, current smoker and venous thromboembolism (VTE) were collected to control for confounding factors. Operative data including surgical approach, drain placement and conversion to open were also collected. Postoperative complications including abdominal abscess, anastomotic leak, hemorrhage, hospital acquired infections, anastomotic stricture, renal failure, re-operation, small bowel obstruction, VTE, wound complications and mortality were collected.
Results: Population: - The total number of patients included was 236, of which 113 underwent RYGB and 123 underwent SG. 16.9% of the population undergoing either procedure had an HbA1c level greater than 7. 4.7% of the population undergoing either procedure had HbA1c levels greater than 9. Age (44.84 years vs 41.47 years p 0.022) and preoperative HbA1c level (6.327 vs 5.870 p 0.007) was significantly higher in the RYGB group. Preoperative BMI was higher in the SG group (47.21 kg/m2 vs 44.46 kg/m2 p 0.006). Risk factors:- Preoperative diabetes, COPD and GERD was significantly more prevalent in the RYGB group $p<0.05$. Operative data:- Post operative complications, 1 incidence of

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anastomotic leak, 1 hemorrhage requiring blood transfusion with associated reoperation and 1 renal failure, 2 anastomotic strictures and 2 wound complications, 3 hospital acquired infections and 3 VTEs were reported in the RYGB group, and 1 hemorrhage requiring blood transfusion was recorded in the SG group. Regression analysis using a variable, which included all postoperative complications, was conducted. HbA1c levels greater than 7 or greater than 9, when controlled for procedure and risk factors did not significantly predict complications.

Conclusions: HbA1c levels when controlled for with type of procedure and risk factors did not significantly predict for complications. Larger retrospective and prospective trials need to be conducted to increase power and conclusively rule out HbA1c as a preoperative risk factor for complication after RYGB and SG.

A5405

Risk factors for anastamotic strictures after laparoscopic Roux-en-Y gastric bypass patients using linear stapler technique

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Background: Gastrojejunal anastamotic strictures following laparoscopic Roux-en-Y gastric bypass (LRYGB) are relatively common with stricture rates ranging from less than 5% to more than 20%. Many factors contribute to strictures including marginal ulceration and surgical technique. Our aim was to identify common risk factors for developing strictures and to evaluate our own endoscopic dilation experience.

Methods: We performed a retrospective chart review of all laparoscopic gastric bypass procedures performed between July 2008 and December 2013 that subsequently required an esophagogastroduodenoscopy (EGD). All surgeries and endoscopies were performed at the same community hospital by a single fellowship-trained surgeon. LRYGB was standardized to include an antecolic, antegastric approach utilizing a linear stapler technique aligned at 30 mm. All postoperative strictures requiring endoscopic dilation were reviewed in detail. Patient demographics, co-morbid conditions, medications, smoke exposure, and H. pylori history were recorded. All patients were preoperatively screened and treated for H. pylori. Intraoperative details were also included. Stricture rates, the number of balloon dilations, and complications were evaluated. Patients who had undergone previous bariatric surgeries were excluded.

Results: 724 patients underwent LRYGB. Gastrojejunal anastamotic stricture rate was 9.8% (71). The stricture rates were not statistically significant between patients in 2008-2010 and those in 2011-2013 (11.7% vs. 8.6%, $p<0.17$). Of those patients with strictures, 36 (48.0%) required one dilation, 22 (29.3%) needed 2 dilations, 13 (17.3%) had 3 dilations, and 2 (2.7%) required 4 dilations. 74.7% of patients with strictures were female. The average BMI was 48, and the average age was 41. 22.2% had a history of smoking. 18.1% had a history of NSAID use, and 12.5% had been treated for H. pylori. Out of the 128 dilatations required, there were 3 perforations. All perforations occurred on the first dilatation in patients with a BMI under 50 and a height of at least 68 inches tall. There were no mortalities associated with LRYGB or EGD balloon dilations.

Conclusions: LRYGB with an antecolic, antegastric approach utilizing a linear stapler technique has an acceptable stricture rate. The majority of strictures can be safely dilated to symptom resolution in 1 or 2 endoscopic dilations.

A5406

Association of Seasonality with Wound Complications and Length of Stay in the Nationwide Inpatient Sample, 2001-2010

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Background: More than one-third of adults in the United States are obese. Currently, long-term weight loss is most successfully obtained with bariatric surgery. However, vitamin deficiencies are common in the obese and may contribute to adverse surgical outcomes. In particular, vitamin D (VitD) deficiency has been suggested to worsen chronic inflammation in obesity, leading to an increased risk of poor wound healing and surgical site infection. We

investigated the association of VitD deficiency with adverse surgical outcomes following bariatric surgery using the Nationwide Inpatient Sample (NIS). **Methods:** We performed a retrospective cohort study using NIS data from over 1,000 community hospitals in the US. VitD levels were assessed indirectly, using seasonality as a proxy, by comparing patients who underwent bariatric surgery in VitD Summer (July to September), Winter (January to March), and Fall/Spring (October to December and April to June). We restricted our analysis to bariatric surgery patients aged 18 to 65 years, and controlled for the latitude of the hospital. **Results:** We identified 190,445 bariatric surgeries, of which 81% percent of the subjects were women and 74% were white. Race and sex were unequally distributed among the seasons (p=0.007 and 0.003 respectively). The median age was 43.0 years and did not vary by season. Most of the surgical procedures were performed in northern latitudes.Rates of adverse surgical outcomes ranged from 0.01% for wound infections to 39.3% for prolonged length of stay (LOS). Summer seasonality was inversely associated with wound infection (p=.042) and dehiscence (p=.001). This relationship held after adjusting for latitude, age, sex, race, and socioeconomic status of the ZIPcode where the patient resides. Prolonged LOS was also inversely correlated with summer seasonality in a graded relationship (p=0.000 in all models). Non-healing wounds occurred in 0.01% of bariatric surgeries and did not vary by season. **Conclusions:** We have demonstrated a strong and graded relationship between seasonality (as a proxy for vitamin D status) and adverse surgical outcomes following bariatric surgery. The association was strongest for wound infection and wound dehiscence, with odds ratios of 3.0 and 1.3, respectively, for the comparison of winter and summer months. These findings are consistent with other reported studies. However, a prospective study with direct measurement of preoperative VitD levels would strengthen the case for a causal role of VitD deficiency in adverse surgical outcomes.

A5407

Risk of hospital readmission after roux-en-Y gastric bypass.

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Background: Complications resulting in hospital readmission are important concerns in bariatric surgery. Identification of causes and preventable triggers for hospital readmission is very important, in order to implement the necessary strategies to optimize surgical outcomes. The aim of the present study is to investigate the 30-day and 90-day readmission rate, causes of readmissions and potential risk factors for readmission in our surgical practice. **Methods:** From the prospective constructed database of our obesity clinic, patients who were readmitted to the hospital within the following 90 days after discharge were recorded and analyzed. Visits to the emergency room not resulting in a new hospital admission were not included. Once patients were identified, hospital charts were reviewed to determine the cause of readmission and the outcome. Readmission rate, demographics, co-morbidities and perioperative factors potentially associated to the hospital readmission were specifically analyzed at 30 and 90 days. **Results:** Our study group was conformed by 757 patients who underwent RYGB (657 primary and 100 revisions) in an 8-year period. There were 442 (58%) females and 315 (42%) males with a mean age of 40.1±11.5 and a BMI of 42.4±6.5. Obese-related diseases were present in 264 (34.8%) patients. Operations were completed laparoscopically in 741 (97.8%) patients. Mean hospital stay after the RYGB was 2.5 ±1.6 days. The 30-day and 90-day readmission rate was 2.6% and 2.0% respectively. Most common causes of readmission at 30 days were: GI bleeding in 6 patients (30%), lung disease in 3 (15%), food intolerance in 3, (15%), and unspecific abdominal pain in 2 (10%). At 90 days most common causes of readmission were: gastrojejunal stenosis in 3 (20%), upper GI bleeding in 2 (13.3%) and nephrolithiasis in 2 (13.3%). There was no 30-day operative mortality and one 90-day mortality due to sudden death. Open surgery was more frequent in patients readmitted at 30 and 90 days (13.3 and 5%) when compared with no readmitted patients (1.8%; chi-square p=0.032). **Conclusions:** In this study the readmission rate after RYGP was low (2.6% and 2.0%) at 30 and

90 days respectively. Most causes for readmission were upper GI bleeding and food intolerance.

A5408

Novel Configuration of Jejuno-Jejunal Anastomosis (J-J) Substantially Decreases J-J-related Small Bowel Obstruction (SBO) after Laparoscopic Roux-en-Y Gastric Bypass (LRYGB): A Preliminary Report

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Background: SBO after LRYGB is a complex and serious problem associated with significant morbidity and mortality. Two common causes of SBO after LRYGB are J-J-related adhesions and mesenteric defects. After observing the patterns of 11 SBOs over 10 years, the primary surgeon changed the J-J creation technique in a manner so that the ultimate configuration and spatial orientation could reduce the chance of recognized patterns to occur. The primary objective of this report was to make a preliminary evaluation as to whether this change in surgical technique is associated with a clinically relevant decrease in incidence of SBO after LRYGB.
Methods: From March 2012, 117 patients had LRYGB with a new configuration that essentially suspended the J-J close to the anterior abdominal wall near the transverse colon, and the divided omentum was draped over it (Study Group); thus, the J-J had limited side-to-side or rotational mobility. Before March 2012, in 434 LRYGB cases by the same surgeon over 10 years, a conventional J-J was performed that allowed relatively free movement and rotation within the abdominal cavity (Historical Control Group). In all cases we used an antecolic approach and the J-J mesenteric defect was closed with non-absorbable suture (but not Petersen's defect).
Results: In the 434 Historical Controls, 11 patients had SBO related to the J-J (2.5%). All 11 with SBO underwent laparoscopic surgical exploration (1 open conversion) with no bowel resection, no 30-day reoperations, and zero mortality. The median time between LRYGB and SBO was 31 weeks (range 4 – 224 weeks). The pattern of SBO in these patients is summarized in Table 1.In contrast, in the 117 patients in the Study Group there were zero cases of SBO recorded until now (follow-up range minimum 4 weeks, maximum 110 weeks). Although this preliminary report lacks sufficient power to test for statistical significance (for which double the case number and follow-up time are needed), the clinical significance of not experiencing a single SBO over 2 years in 117 cases after intervention with the new J-J configuration is too noticeable to be ignored and too important not to be shared with peers for the potential immediate benefit of bariatric surgery patients.We speculate that rotational movements of the J-J contribute to adhesion formation while side-to-side movements promote dehiscence of the closed J-J mesenteric defect. Limiting these movements with our novel J-J configuration potentially diminishes these pathogenic processes and thus impedes the development of SBO.
Conclusions: We provide preliminary evidence that indicates that a J-J configured with limited mobility substantially reduces the occurrence of J-J-related SBO after LRYGB. By continuing to perform this novel technique to add another 100 patients over the next two years, we will provide the statistical power needed to either confirm or refute this very positive trend. If we indeed confirm our preliminary finding of substantial reductions in the incidence of SBO with our novel J-J configuration, then the safety of the LRYGB will be further augmented and the attendant risk of mortality and morbidity from SBO will also be positively impacted.

A5409

Gastric Obstruction after Sleeve Gastrectomy and Hiatus Hernia Repair

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Background: Gastric obstruction after laparoscopic sleeve gastrectomy (LSG) is an unusual complication, particularly when it happens at the level of the hiatus. There are very few reports of this complication.
Methods: This is a case review of a patient who underwent LSG and hiatus hernia repair (HHR). The radiological identification and course of the complication is described together with the surgical treatment and the subsequent follow-up and outcome. We then discuss the available published literature and steps to prevent and treat this complication.
Results: A 30 year old male with a BMI of 33.3 with associated hypertension, hyperlipidemia,

NASH, gastroesophageal reflux and asthma underwent LSG in 2013. Preoperative endoscopy had shown a Type 1 sliding hiatus hernia (HH). The HH was confirmed at laparoscopy and repaired with non-absorbable suture approximation of the crura posteriorly after adequate mobilization of the distal esophagus. The LSG was then completed in the usual fashion over a 38Fr orogastric bougie. Post-operatively, the patient could not tolerate oral fluid, vomiting after each attempted swallow. There was no abdominal distension or tenderness. The vital signs were normal. An oral contrast study was performed immediately. It showed proximal obstruction of the gastric tube at the hiatus. The patient was returned to the operating room immediately and laparoscopy confirmed the proximal herniation of the upper part of the gastric tube through the repaired hiatus. The repair was taken down before reduction of the herniated gastric tube. A methylene blue leak test was performed. Adequate mobilisation of the distal esophagus was confirmed before the crura were re-approximated with non-absorbable suture. A gastropexy was then performed with non-absorbable suture to anchor the entire length of the gastric tube to the hiatus and the posterior aspect of the lesser sac. A repeat oral contrast study showed good flow of contrast to the duodenum without obstruction. The patient was discharged the following day. At 6 months follow-up the patient had Excess Weight Loss of 94% (38.1kg). There have been no more episodes of vomiting or reflux symptoms. He did not require any anti-reflux medication. **Conclusions:** Gastric obstruction after LSG and HHR has not been extensively reported. Mizrahi reported in Obesity Surgery (2014) that routine GI swallow studies following sleeve gastrectomy revealed 5 cases of leak and one case of complete obstruction due to incarcerated hiatus hernia. Dapri reported in Obesity Surgery (2007) that a complication of hiatus hernia after sleeve gastrectomy required repair. Kotak reported in SOARD (2013) one case of recurrent HH occurring 64 months after LSG & HHR which presented with nausea, dysphagia and reflux symptoms. Although concurrent LSG and HHR has been recommended, a study by Santonicola (SOARD 2014) showed that concurrent HHR did not produce improvement in GERD symptoms. The tubularized stomach after LSG is susceptible to proximal herniation particularly if the angle of His has been obliterated. As crural closure cannot be too tight to prevent dysphagia, gastropexy is a useful adjunct to prevent recurrence in addition to the usual steps of adequate mobilization of the hernia sac and the distal esophagus.

A5410

Morbidity Rates of Laparoscopic Roux-en-Y Gastric Bypass, Sleeve Gastrectomy and Adjustable Gastric Banding in Patients Aged Sixty and Older

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Background: As life expectancy increases, more elderly patients fit into the criteria for bariatric procedures. Currently, the risk and benefit ratio of bariatric surgery is not established for the elderly patient population. The aim of our study is to evaluate and compare the safety and efficacy of laparoscopic Roux-en-Y gastric bypass (LRYGB), sleeve gastrectomy (LSG) and adjustable gastric banding (LAGB) in patients older than 60. **Methods:** Between January 2006 and December 2013, a total of 3,045 patients underwent LRYGB, LSG, and LAGB at our institution. Of these, 153 LRYGB, 69 LSG and 59 LAGB patients were older than 60 years of age at the time of primary procedure. A retrospective review was performed in these patients, noting the outcomes and complications of the procedure. **Results:** Mean age and body mass index (BMI) was 62.4±2.0 years (range 60-70), 63.9±2.9 years (range 60-72), and 62.6±2.1 years (range 60-67), and 45.9±6.8 kg/m2 (range 34.3-74.5), 44.2±7.1 kg/m2 (range 34.7-64.7), and 42.0±5.2 kg/m2 (range 32.9-56.6) for LRYGB, LSG, and LAGB at the time of procedure, respectively. Thirteen (8.5%) patients from the LRYGB, 3 (4.3%) from the LSG, and 6 (10.2%) from the LAGB group required a total of 18, 5, and 6 readmissions, respectively. Nine (5.9%) patients in the LRYGB, 0 in the LSG, and 6 (10.2%) in the LAGB group required a total of 9, 0, and 7 reoperations, respectively. The difference in reoperation rates was statistically significant ($p<0.03$) while that in readmission rates was not ($p>0.58$). **Conclusions:** LSG showed lowest readmission and reoperation rate in patients older than 60, when compared to those of LAGB and LRYGB.

*** Presentation under consideration for the John Halverson Young Investigator Award**

A5411

Predictive factors of biliary complications after bariatric surgery

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Background: Obesity is a major public health problem associated with significant morbidity and mortality. Obesity is also a well-known risk factor for gallstones formation. Bariatric surgery is the most effective therapy for morbid obesity. However, the effective weight loss caused by this type of procedures induces specific middle or long term complications such as biliary lithiasis. The goal of this study is to determine predictive factors of biliary complications after bariatric surgery.
Methods: After IRB approval, charts were reviewed to identify patients who had biliary complications after bariatric surgery between the years 2005 and 2012. Data collected included baseline patients demographics, perioperative parameters, and postoperative biliary complications. Parameters were analyzed using paired and unpaired student's t-test for continuous variables and Chi-square test for categorical variables. Uni- and multivariate analyses were used to assess the risk factors for complications after bariatric surgery. All tests were two tailed and results with a $p<0.05$ were considered statistically significant.
Results: We identified 138(3.6%) patients of 3765 with biliary complications during the 8-year study period. The cohort had a male-to-female ratio of 30:108, mean age of 53.0±12.0 years, mean initial Excess Weight of 64.7±25.1 kg and mean BMI of 47.9±8.4 kg/m2. A total of 114 (82.6%) subjects had laparoscopic Roux-en-Y Gastric Bypass (RYGB), 12 (8.6%) had laparoscopic Sleeve Gastrectomy, 9 (6.5%) underwent laparoscopic Gastric Band, 2 (1.4%) had laparoscopic revisional surgery for a previous failed bariatric procedure and one (0.7%) underwent laparoscopic Gastric Plication. Mean time from the first bariatric procedure to the biliary complication was 1.8±1.4 years. Of these 138 patients, 40 subjects (28.9%) had cholelithiasis prior the bariatric procedure. Biliary complications included; acute cholecystitis (18.1%), chronic cholecystitis (70.2%), acute pancreatitis (9.4%), CBD stones (5.7%) and Jaundice (2.8%). Biliary complications treatment distribution was: laparoscopic cholecystectomy (n=89, 64.4%), laparoscopic cholecystectomy with cholangiogram (n=45, 32.6%) and open cholecystectomy (n=1, 0.7%). The mean BMI and at this time was 32.9±7.6 kg/m2. Mean operative time was 86.0±47.1 minutes. The conversion rate was 4.3% (n=4.3%) and there was no mortality. Univariate analysis identified Female gender, age, cholelithiasis at the time of the bariatric procedure and the RYGB as predictive factors of biliary complications. Multivariate analysis of all variables confirmed age and type of bariatric procedure (RYGB) as predictive factors of complications.
Conclusions: The results of our study suggest that advanced age and patients with cholelithiasisundergoing RYGB are the population at higher risk of biliary complications. However, it remains unclear if prophylactic cholecystectomy would be of benefit in this population.

A5412

Obesity Surgery Mortality Risk Score does not predict the preoperative mortality risk in laproscopic sleeve gastrectomy patients

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Sint Franciscus Gasthuis[1]

Background: Bariatric surgery is the best long-term treatment for morbid obesity and its related comorbidities, but also carries risks for morbidity and mortality. The obesity surgery mortality risk score (OS-MRS) is a tool for preoperative prediction of mortality risk in bariatric surgery. This OS-MRS has been validated in patients receiving Roux-Y gastric bypass, but not for laparoscopic sleeve gastrectomy, a procedure that may be the procedure of choice in high-risk patients.
Methods: The OS-MRS uses five preoperative variables and assigns one point to each of them (age ≥45 years, male gender, BMI≥50kg/m2, hypertension and risk factors for pulmonary embolism). Patients with score 0-1 are classified as class A (lowest) risk group, score 2-3 as class B (intermediate) risk group and score 4-5 as class C (high) risk group. We assessed the validity of the OS-MRS in 722 patients who had undergone laparoscopic sleeve gastrectomy in

our hospital between 2007 and 2012. Our endpoint was a composite of non-fatal adverse events as well as mortality.
Results: Median age in the current study population was 42 years (range 18-63); median preoperative BMI was 44 kg/m2 (range 27-72). Overall morbidity and mortality rates were 9.3% and 0.4%, respectively. Within our study population 425 patients had a risk score of 0-1 classified as class A (58.9%), 282 patients (39.1%) were graded as class B (score 2-3), and 15 patients (2.1%) as the high risk group, class C (score 4-5). Overall morbidity was scored 8.7% in class A, 10.6% in class B, and 0% in class C; the three patients that died in the postoperative course in the hospital were ranked as class B.
Conclusions: The OS-MRS was not able to stratify the overall morbidity or mortality risk in the three risk classification subgroups of our study population of bariatric patients undergoing laparoscopic sleeve gastrectomy. This can be explained by in general low morbidity and mortality rates in bariatric surgery patients after the introduction of the laparoscopy; very large study populations are needed in order to obtain valid comparisons. For now, the OS-MRS will not be helpful in our preoperative identification of high-risk patients undergoing sleeve gastrectomy.

A5413

Precise bariatric surgery in Asian obese patients: 0% postoperative complications in 195 consecutive cases

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Background: Number of obese patients in Asia is increasing. Bariatric surgery is technically complex. It is important to refine existing techniques to improve the outcomes of patients. We discuss the characteristics and applications of the precise bariatric surgery in clinical practice.
Methods: Clinical data was reviewed in consecutive patients underwent laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic sleeve gastrectomy (LSG) in the First Affiliated Hospital of Jinan University between June2011 and July 2013. Several techniques and concepts were modified and improved not only in equipment, but also preoperative management, and other details during operations.
Results: 195 cases (143 LRYGB and 52 LSG) were included in this study. All the procedures were successfully performed with no conversion to open surgery or death cases. In LRYGB group, average operation time was 138±21.3 minutes, postoperative hospital stay was 5.2±1.2 days. Percentage of excess weight loss in 1, 3, 6, and 12 month after operation were 26.4±8.6%, 53.3±6.7%, 75.3±7.9%, 78.5±8.5%, respectively. In LSG group, 58±10.1 minutes, postoperative hospital stay was 5.1±1.3 days. Percentage of excess weight loss in 1, 3, 6, and 12 month after operation were 23.3±12.1%, 38.3±8.7%, 71.2±15.4%, 73.5±8.6%, respectively. Co-morbidities such as fatty liver, hyperlipidemia and type 2 diabetes mellitus were cured or relieved significantly without rely on medicine in both groups. No severe complications such as bleeding, leaks, obstructions, internal hernia were observed in both groups.
Conclusions: Precise bariatric surgery focus on precise operation which has modifications and improvements in surgical techniques. It is safe, feasible and not significantly increasing the operation time. It has significant surgical outcomes with low complications rate which deserves popularization.

A5414

Bariatric Surgery Outcomes in Patients Aged 60 and above

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Background: There is little data on the relative safety and efficacy of different bariatric surgical approaches in older patients and there is no international consensus about the choice of procedure. We studied the safety and efficacy of bariatric surgery in patients over the age of 60 operated and assessed if there were any differences in outcomes of standard bariatric procedures performed at our tertiary referral bariatric centre.
Methods: We conducted a retrospective review

of all patients treated between 2007 and 2013 at Whittington Health, London, UK. For this study, we included patients aged 60 years and above. We compared the different bariatric procedures for the outcomes of 30-day postoperative morbidity and weight loss achieved at 6 and 12 months post-surgery. **Results:** All 860 patients who underwent bariatric surgery between 2007-2013 were included. The age range was 17-77 years. Fifty four (6.3%) patients were aged 60 years of more (age range 60-77 years). Gastric bypass was the most commonly performed procedure (26/54, 48.1%), followed by gastric banding (21/54, 38.9%) and sleeve gastrectomy (7/54, 13.0%). Gastric bypass complications were leaks, DVT, hospital acquired pneumonia and bleedingPost-operative gastric banding complications were bowel perforation(2 patients)Sleeve gastrectomy complications was bleeding requiring reoperation (1 patient)There was no mortality in this group of patients.Data for patients aged 60 and above is shown below: **Conclusions:** This study demonstrates that bariatric surgery is safe and effective for the over 60s, based on a retrospective review of 54 patients. Although overall complication rates are higher for over 60s than under 60s, this may be true of any elective surgical intervention.This study demonstrates that gastric bypass leads in excess body weight loss but has higher complication rate. Weight loss with gastric banding at one year is less than ideal. Sleeve gastrectomy delivers better weight loss at one year than gastric banding and has lower complication rate. This may be considered in the decision making process regarding the procedure of choice in the over 60s. Further randomised studies are needed in order to further these findings.

A5415

Is Bariatric Expertise needed to deal with Emergency Room admissions following Bariatric Surgery?

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Background: Patients may have multiple Emergency Room (ER) visits following a Bariatric procedure which may range from non-specific abdominal complaints requiring conservative management to an abdominal emergency which may require immediate surgical intervention. Following Bariatric surgery, the abdominal anatomy is often variable and complex. Often, surgeons with no bariatric expertise may feel uncomfortable taking care of these patients. We looked at our experience over a 12 month period in managing this unique but ever increasing patient population. **Methods:** A retrospective chart review was done for the patients who were admitted from our ER with abdominal complaints with a history of having bariatric procedure. All patient visits between January 2013 and January 2014 were reviewed. Type of Primary bariatric procedure, time from procedure, weight loss, diagnosis and management of the problem were reviewed. **Results:** 63 patients met the inclusion criteria. 97% (61 / 63) of patients were following Roux en y gastric bypass. The time range from primary procedure was 1 month to 19 years. The most common complaint was abdominal pain. (95%). Nausea and vomiting as primary complaint was seen in 3% of patients. Other complaints included dysphagia, hematemesis and syncope. 94% (59/63) of visits needed some form of intervention ranging from upper endoscopy, diagnostic or therapeutic, diagnostic laparoscopy, exploratory laparotomy, adhesiolysis, reduction and repair of internal hernia and revision of gastro jejunostomy. The main diagnoses were Internal Hernia 17.5% (11/63), Gastrojejunostomy perforation 7.9% (5/63), Stricture 14.2% (9/63), Adhesions 19%(12/63), Cholecystitis 4.7% (3/63) and Volvulus at jejuno -jejunostomy 3.1% (2/63). There was no mortality in this series. **Conclusions:** After bariatric surgery abdominal pain is the main presenting complaint among patients presenting to the ER. A variety of diagnoses can be a responsible for this pain. Our data shows that these symptoms require some form of intervention patients, surgeons who have experience in bariatric surgery would be more equipped to deal with these complications. in more than 90% of cases. Due to varied anatomy and unique pathology associated with post bariatric surgery

A5416

External validation of a nomogram predicting the occurrence of complications after bariatric surgery

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Background: Bariatric surgery is the best long-term treatment for morbid obesity and its related comorbidities, but also carries risks for morbidity and mortality. In 2011 a nomogram has been developed from a large nationwide database in order to predict the occurrence of postoperative complications after bariatric surgery. A nomogram gives a graphical representation of the predictive strength of specific predictors and enables clinicians to calculate an overall risk score for individual patients reflecting their personal risk. In the present study, we externally validated this nomogram in a new cohort of patients who underwent bariatric surgery in a single high-volume center. **Methods:** The developed nomogram aims for prediction of a composite binary outcome of 30-day postoperative morbidity and mortality, based on demographic and preoperative variables (i.e. age, BMI, hypertension, smoking status, ASA-score, serum albumin, functional dependence, race and history of COPD). An independent dataset of 1075 patients who underwent bariatric surgery in our hospital between 2007-2012 was used for validation. The discriminatory capability of the nomogram was determined by using the concordance index (c-statistic). Calibration was evaluated by comparing the observed with the expected number of patients with complications, as predicted by the original nomogram across patients with different risk profiles. **Results:** The median preoperative risk score as calculated by the original nomogram was significantly lower in the validation cohort than in the derivation cohort ($p<0.001$), indicating that the case mix with respect to the presence of predictors included in the nomogram was more favorable in the validation cohort. Discrimination of the original nomogram was lower in the validation cohort: the c-statistic decreased from 0.629 in the original cohort to 0.590 in the validation cohort, indicating a poor to moderate discrimination. Observed and expected number of patients with complications were in close agreement, reflecting a good calibration. **Conclusions:** External validation of a nomogram predicting the occurrence of complications after bariatric surgery showed that the model may be applicable in another high-volume hospital, although the discriminatory capability of the nomogram decreased even more. Preoperative prediction of complications in individual patients remains difficult, most likely due to the complexity of mechanisms causing these complications.

A5417

Utility Of Peroperative And Postoperative Leak Tests - Our Retrospective Analysis

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Background: A leak anywhere along the alimentary tract after surgery is the most serious complication associated with bariatric operations. Early detection of gastrointestinal leaks, however, may reduce morbidity and mortality.Peroperative methylene blue test and postoperative CT with oral contrast may detect an obstruction or an anastomotic leak. We analyzed our data retrospectively to determine the efficacy of routine imaging. **Methods:** We routinely perform peropearative leak test by administration of methylene blue(50ml) through the bougie and simultaneously the distal gastrointestinal tract is occluded by long intestinal forceps to create pressure on the gastric staple line or gastrojejunostomy(GJ) . On the first postoperative day we also perform a CT scan with oral contrast using Sodium Diatrizoate, (GASTROLEK), diluted 1:20 ratio, 30ml given orally 10 minutes before the scan. **Results:** We retrospectively analyzed our data of 447 bariatric procedures performed over a period of five years. Our demographic data had 62%Females and 38%males with a mean BMI of 43Kg/m2 and mean age of 41years.We performed 268 Laparoscopic sleeve gastrectomy (LSG),143 Roux-en-Y Gastric bypass(LRYGB), 14 Minigastric bypass(MGB) and 22 Revision Bariatric surgery(RBS). Peroperative methylene blue leak test detected leaks in 3 RYGB patients at the GJ and the leaks were resutured intraoperatively, subsequently these patients had a normal postoperative CT scan and had an uneventful recovery. First postoperative day CT scan with oral contrast was normal in all cases revealing no leak or distal obstruction. We had one leak in the LSG group on the 7th postoperative day. This patient had all the symptoms of peritonitis and the CT with oral contrast revealed a leak at the gastroesophageal junction. **Conclusions:** Routine intraoperative methylene blue test is simple, inexpensive, reliable, and effective in detecting intraoperative leakage

during bariatric procedures and helped in reducing the incidence of postoperative leakage in LRYGB by allowing for intraoperative repair of the leaking site. On the contrary, routine postoperative CT scan with oral contrast on postoperative day 1 is an ineffective and expensive tool in detecting leakage. In view of our data , we recommend performing routine peroperative methylene blue testing and performing postoperative CT scan for cases with signs and symptoms suggestive of leakage

A5500

Novel Device for Fully Flexible Tissue Sealing with Thermal Fusion in Sleeve Gastrectomy

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Background: Tissue sealing devices utilizing sonic or advanced bipolar energy have been chosen for many tasks in bariatric surgery to efficiently seal and dissect tissue. One recognized challenge of reduced port surgery is the limited nature of articulation to achieve angles accustomed to in traditional multiport laparoscopy. Some efforts have been made to add limited articulation to advanced bipolar devices, but fully flexible advanced energy devices which can approach tissue from multiple angles from the same incision haven't been available to bariatric surgeons. **Methods:** A single surgeon performed a total of 9 consecutive laparoscopic sleeve gastrectomies utilizing a reduced port, peri-umbilical approach with the SPIDER® Surgical System (TransEnterix, Durham, NC). A novel flexible energy device with direct heat for thermal fusion was used for tissue sealing through one of the articulating channels of the SPIDER device, known as the Flex Ligating Shears. No other energy instrument was used during the case. The surgeon has performed over 150 sleeve gastrectomies with the reduced incision technique, but never had utilized fully flexible energy device in the articulating channels of the single port device prior to this series.
Results: All 9 sleeve gastrectomies were successfully completed. The mean operative time (skin to skin) was 52 minutes (range 33 to 59). The mean BMI was 39 (range 31 – 49). In all cases a 34 Fr. bougie was used to assist in sizing the sleeve. All but 2 patients were female, and the average age was 40 years. There was one case which included an anterior hiatal hernia repair. Mean blood loss was 19 cc (range 10-30). In all cases a fully flexible thermal fusion device was used to mobilize the greater curvature of the stomach and control bleeding. The sleeve was completed by means of a laparoscopic stapler delivered from the umbilicus. There were no complications. **Conclusions:** A fully flexible energy device appears to be feasible to perform transumbilical sleeve gastrectomies. The device performed with minimal observable smoke, and controlled bleeding from the gastroepiploic and short gastrics. The case times include the initial learning curve, and were deemed acceptable for a novel flexible energy device utilized in a transumbilical approach. Further study of fully flexible thermal fusion devices for tissue sealing in bariatric surgery is recommended.

A5501

Magnetic Resonance Venography for the Detection of Asymptomatic Deep Venous Thrombosis in the Bariatric Surgical Patient

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Background: Despite attention to prophylaxis, deep venous thrombosis (DVT) remains a leading cause of morbidity and mortality in the bariatric patient, and asymptomatic DVT may be underreported. The current gold standard for detection of DVT is contrast venography (CV), but this modality is invasive and difficult to perform in the obese. Duplex ultrasound is more commonly used, but has limited sensitivity in this population due to thick lower extremities and obscuration of the pelvic veins by abdominal fat. Magnetic resonance venography (MRV) has been suggested as a non-invasive alternative with better sensitivity in the obese patient. **Methods:** This was a prospective cohort study conducted at an academic institution. From July 2010 to August 2013, 175 consecutive bariatric surgical patients underwent outpatient magnetic resonance venography (MRV) of the pelvis and lower extremities between postoperative days 10 and 14. The studies were independently interpreted by two qualified radiologists. Each

radiologist was blinded to the clinical status of the patient and whether anticoagulation therapy was administered. Coronal reformatted multiple intensity projections and source axial images were reviewed, and discrepancies in interpretations were adjudicated by collaborative review by both radiologists. Patients diagnosed with DVT by MRV were treated with anticoagulation.
Results: Of 175 patients evaluated for asymptomatic DVT by MRV, four DVTs (2.3%) were diagnosed. All were large, and were located in the left iliac vein. Seventy-five patients (37.9%) underwent laparoscopic vertical sleeve gastrectomy and 123 (62.1%) underwent laparoscopic Roux-en Y gastric bypass. The mean operative time for LRYGB and VSG was 202 (SD±46) minutes and 156 (SD±41) minutes respectively. The average length of stay for the post-operative bariatric surgical patient was 2.4 (SD±0.6) days. Patients with a DVT had a higher mean pre-operative BMI than patients without DVT (51.0 kg/m2 versus 45.3 kg/m2; p=0.04). Other factors that appeared to be associated with DVT incidence but which did not attain statistical significance included older age (49.5 years versus 40.6 years; p=0.06), Type II diabetes (75.0% versus 25.7%; p=0.06), and hypertension (100.0% versus 52.0%; p=0.12).
Conclusions: MRV is an underutilized non-invasive diagnostic tool for the detection of DVT, and should be considered for use in the obese patient. This is the first prospective study investigating the use of MRV to detect asymptomatic DVT in the bariatric surgical patient. Asymptomatic DVT may lead to sudden death, and this study shows despite in-hospital chemoprophylaxis, patients can develop large asymptomatic DVT in the iliac veins. Further studies should be conducted to refine the technique and confirm the diagnostic accuracy of MRV in this population. Finally, a cost analysis study should be considered to compare MRV with other diagnostic modalities.

A5502
Is Robotic Single-Site Cholecystectomy Safe in the Obese Patient?
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Background: Robotic single-site cholecystectomy has been shown to be a safe alternative to the laparoscopic approach in selected patients. To our knowledge, there has not been a study to date that demonstrates the safety and efficacy of RSSC in obese patients. Patient selection has prevented RSSC as a surgical option in some obese patients at other institutions. This study reports our experience with the robotic single-site cholecystectomy in 100 patients with a BMI ≥ 30
Methods: Between November 2012 and March 2014, 100 obese patients with gallbladder-associated pathologies underwent robotic single-site cholecystectomies (RSSC). All patients were offered the robotic procedure regardless of age, previous surgery and acuity of their disease with no exclusion criteria. Obese patients with (BMI ≥ 30) were included in the study and were evaluated for demographics, comorbidities and postoperative outcomes.
Results: A total of 100 cholecystectomies were successfully performed without conversion to open, laparoscopic or multiport procedures. The mean BMI was 39.6 (range 30.1-62.3). Thirty-six patients had a BMI ≥ 40 (36%) and 12 patients had a BMI ≥ 50 (12%). Comorbidities included hypertension (49%), diabetes mellitus (21%) and hepatitis B or C (5%). Forty-three patients (46%) had a history of prior abdominal surgery. Most procedures were non-elective (76%) with patients presenting to our emergency department or acute inpatient consultations. Pathology showed chronic cholecystitis and cholelithiasis in 66 patients (66%), acute cholecystitis in 23 patients (23%), cholelithiasis in 8 patients (8%), and gangrenous cholecystitis in 3 patients (3%). After a mean follow-up of 5 months, there were no major complications recorded including bile leak, ductal injury. There were two umbilical (incisional) hernias (2%) reported and zero wound infections.
Conclusions: Robotic single-site cholecystectomy can be safely performed in the obese patient population. Patients that are morbidly obese, have had previous surgery or present with acute pathology should not be excluded based on their BMI.

A5503
Pre-operative weight loss using a ketogenic feeding tube diet
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Background: With no American state having an obesity prevalence of <20% and thirteen states having a prevalence rate >/= 30%, medical interventions are becoming increasingly necessary. The current study sought to evaluate a physician-supervised, outpatient 10 day ketogenic feeding tube diet as an option for overweight or obese patients.
Methods: This is a retrospective study of 241 office patients of which 200 had a 6 Fr pediatric feeding tube inserted through the nose under local anesthesia and a continuous carbohydrate-free ketogenic mixture administered resulting in medically supervised weight loss. Over a 30 month period, 200 patients were selected with BMIs ranging from 21.94 to 54.36,verifiable initial and final weights, serial blood chemistries, urinary ketone levels, and body mass composition as measured by DEXA.
Results: Mean patient age was 44.7 years (range 20-70 years) with an 83.1% female ratio and 65% Caucasian ratio. Mean BMI was 31.8 (SD=5.01). Mean duration of treatment was 8.7 days (range 2-13 days).72.9% (N=129) tolerated the procedure well with little or no discomfort. There were no reported complications due to the feeding tube insertion or use. Paired sample t-tests indicated that there was significant total weight loss (mean 10.87 lbs, SD=4.44) [t(175) = 32.885, p <0 .0001], BMI (-1.95kg/m2, SD=0.68,p<0.0001), total fat free mass(FFM) reduction(-3.5kg, SD=1.93,<0.0001) [t(110) = 18.816, p <0 .0001], and fat mass(-1.5 kg, SD=1.28,p<0.0001). Significantly elevated urinary ketone levels [t(146) = 17.595, p < .001] were also seen.
Conclusions: The ketogenic feeding tube diet may be an effective preoperative weight loss method for patients needing to lose weight prior to bariatric surgery.

A5600

Bariatric surgery in the super-obese: one or two steps

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Background: Bariatric surgery in the super-obese usually carries out an increase in the technical complexity, and as a consequence, an increase in postoperative medical and surgical complications. For this reason, DeMaria et al proposed the staging of surgery commencing with a sleeve gastrectomy and, after an appropriate weight loss, completing the operation with a gastric bypass or a duodenal switch. However, some authors consider that there is a worse weight loss when surgery is staged, as the patient after the sleeve gastrectomy is a patient adapted to an undernutrition state, and for that reason, resistant to weight loss operations.Aim. To compare in a retrospective study the results of single-anastomosis duodeno-ileal bypass with sleeve gastrectomy (SADI-S) performed on the super-morbid obese patient as a single step operation, with those obtained after staging surgery with an initial sleeve gastrectomy followed by a second step one-loop duodeno-ileal bypass.
Methods: One hundred and ten patients were consecutively submitted to SADI-S with a 250 cm common loop; 42 of them had a BMI over 50 kg/m2. In 28 patients SADI-S was performed as a single step surgery (Group 1), while in 14 cases an initial sleeve gastrectomy was performed, and in the follow up, after a non-satisfactory weight loss, a duodenal diversion in one loop was performed (Group 2). Patients in Group 1 had a mean age of 43.7 years, an initial weight of 139 kg, a mean BMI of 53 (50 - 62) an a mean excess weight of 73 kg. Patients in Group 2 had a mean age of 42 years, a mean weight of 147 kg, a mean BMI of 56 and a mean excess weight of 82 kg.
Results: In one case in Group 1 a laparotomy was necessary to complete the anastomosis due to technical difficulties. There were 3 postoperative complications in Group 1, phlebitis, arrhythmia and respiratory insufficiency which needed tracheostomy for weaning. In Group 2 there were no postoperative complications. Weight loss was satisfactory in both groups, with one failure (<50% EWL) in Group 1 and no failure in Group 2. Mean excess weight loss was 60%, 84%, 94%, 86%, 79% and 83% at 6, 12, 18, 24, 36 and 48 months in Group 1, and 56%, 70%, 75%, 69%, 78%, and 67% at the same periods in Group 2. Differences were significant at 12, 18 and 24 months, with a better weight loss in Group 1 patients.
Conclusions: Two-step surgery decreases postoperative complications in the super-obese patient. Weight loss is satisfactory both for one

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and two-step surgery, but better when the operation is performed in one step. A possible bias of these conclusions is that in this retrospective study patients for a second step are those who failed to an initial sleeve gastrectomy, and not initially selected for a mandatory 2-step schedule.

A5601
Chronic pain following bariatric surgery: Suggestions for clinical management
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Background: Chronic pain is a prevalent and disabling diagnosis in obese individuals, but how bariatric surgery impacts chronic pain has not been well documented. Our aim was to examine participants of a chronic pain rehabilitation program and compare post bariatric surgery patients to a cohort of non-bariatric surgery case control patients.
Methods: This was a retrospective case-control study. Medical records of patients admitted to the Pain Rehabilitation Center at Mayo Clinic from 2008 to 2012 were reviewed. 106 patients with a history of bariatric surgery (cases) were identified and matched to 106 patients without a history of bariatric surgery (controls) on age, gender, and smoking status (n=202). Psychological, pain, medication, and treatment outcome variables were compared between the two groups. Matched t-tests and McNemar's tests were used for analyses.
Results: The mean age was 46 years, 91% were female and 58% were nonsmokers. The majority of cases (71%) had undergone Roux-en-Y gastric bypass. Bariatric patients had higher levels of morphine equivalents at admission (81.4 vs. 55.3 mg/day, p=0.0629), had higher rates of benzodiazepine use at discharge (33% vs. 19%, p=.0433), and were less likely to complete treatment (87% vs. 97%, p= 0.007) compared to the controls. No differences were found in self-reported psychological or pain variables.
Conclusions: Patients with a history of bariatric surgery had higher use of opioids, benzodiazepines, and were less likely to complete chronic pain treatment. If confirmed by other investigators, these results suggest that bariatric patients may have more complex pain management issues compared to other patients, and may be at high risk for treatment non-adherence.

A5602
Retrospective review of cost analysis post-bariatric surgery at a single institution.
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Background: The medical benefits after bariatric surgery has been well documented since its inception. This paper examines the short and long-term effects that weight loss surgery can have on health care cost at a single institution using the institutions health care plan.
Methods: A retrospective review of procedures including the gastric band, gastric sleeve and gastric bypass was performed from 2009-2013 at Lafayette General Medical Center. The employees that underwent surgery were categorized into four health categories (high, moderate, low and no known risk) that assessed their risk factors prior to surgery based on conditions/diagnosis contributing to individual risks. These patients were evaluated over a 21 month period. The combined medical and prescription drug cost were also evaluated.
Results: The participants average risk scores decreased 31% after surgery with the high-risk patients decreasing by 77%. At approximately 2 years after bariatric surgery, the combined medical and prescription spend per member per month has significant decreased approximately 70% from $1557.72 to $463.58.
Conclusions: In conclusion, this research provides valuable information regarding the health benefits along with cost effectiveness at a single institution. These findings may be useful for self-funded employers to offer bariatric surgery benefits to their employees who may currently not be covered.

A5603
Elective gastroscopy prior to bariatric surgery in a Singapore cohort - is it worthwhile?
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Background: Gastroscopy is considered an obligatory preoperative investigation in patients undergoing bariatric surgeries across many institutions. Its use however remains controversial. In Asia where there is a high prevalence of upper gastrointestinal pathologies, its utility is not well studied. The aim of the study is to evaluate the diagnostic yield, identify the most common gastroscopy findings and clinical significance in asymptomatic individuals undergoing bariatric surgery.
Methods: We retrospectively reviewed data of all patients undergoing gastroscopy prior to bariatric surgery at two tertiary institutions (National University Hospital and Khoo Teck Puat Hospital, Singapore) between January 2006 and June 2013. Patients with GI symptoms were recorded and excluded. Variables collated included patient demographics and gastroscopy findings, operative procedures and any significant changes in clinical management. Gastroscopy findings were reviewed by an experienced endoscopist and classified into 4 groups: Group 1 (Normal study), Group 2 (Abnormal findings that do not modify surgical approach), Group 3 (Abnormal findings that modify surgical approach) and Group 4 (Absolute contraindications to surgery).
Results: There were 208 patients who satisfied the criteria. Gastroscopy was normal in 70 (33.6%) of them. The most common findings were gastritis 49.5% (n=103), hiatal hernia 15.9% (n =33), esophagitis 9.1% (n =19) and peptic ulcer disease 4.8% (n =10). 5.3%(n =11) had benign polyps. Helicobacter Pylori associated gastritis was found in 13.9% (n =29). Of these, 27.4% (n=57) were classified into Group 2. These were mainly patients who had mild gastritis or esophagitis. 38.0% (n=79) patients had significant gastritis or esophagitis, peptic ulcer disease, hiatal hernia or mass lesions and were classified into Group 3. Modification of surgical approach included concurrent hiatal hernia repair, institution of medical therapy with delay in surgery, further evaluation of mass lesions and alteration in surgery performed (gastric bypass to sleeve gastrectomy). There were 2 patients who were found to have absolute contraindications to surgery (Group 4). One patient had an incidental gastro-esophageal junction cancer and underwent endoscopic mucosal resection. Another patient had an incidental gastro-intestinal stroma tumour and had concurrent resection of the tumour during his bariatric surgery.
Conclusions: In our practice, routine pre-operative gastroscopy had a high diagnostic yield. This has led to the institution of appropriate medical therapy, further optimization of surgical management and the detection of a junctional malignancy. Given the high percentage of patients with clinically important lesions, our current experience supports the use of routine preoperative gastroscopy prior to bariatric surgery in Singapore.

A5604

Bariatric surgery and the left liver lobe – preoperative non-invasive risk assessment

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Background: During bariatric surgery the size of the left liver lobe (LLL) can cause problems. The established obesity indices such as Body-Mass-Index (BMI), Body-Adiposity-Index (BAI) or Waist-to-Height-Ratio (WHtR) are not convenient to predict problems associated with an oversized LLL. Examinations capable of such preoperative risk assessment often have to be reconsidered because of economic or invasive issues. The aim of this study is to evaluate possible non-invasive indicators to assess the size of LLL preoperatively and associated perioperative risks.
Methods: LLL was measured (vertical diameter at GE-Junction, horizontal diameter) during all bariatric procedures performed at our department as well as the patients weight, height, waist and hip preoperatively. The established obesity indices such as BMI, BAI, WHtR as well as Waist and Waist-to-Hip-Ratio (WH) and preoperatively analyzed blood samples were correlated with the measurements of the LLL.
Results: 100 Patients (80 female and 20 male) with a mean age of 41 (18-62) years and a mean preoperative BMI of 46 (38-61) were enrolled into our study. A significant correlation could be found between the size of the LLL and certain liver enzymes such as AST ($p<0.0001$) and ALT ($p<0.0001$) as well as GGT ($p<0.0028$).

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On the contrary there was no significant correlation between the size of the LLL and the established obesity indices. **Conclusions:** The common obesity indices are useless for the preoperative risk assessment concerning the LLL size. The investigated method is a simple, cheap, feasible and almost non-invasive possibility to assess the LLL size preoperatively and to consider a temporary low energy diet to minimize complications during complex bariatric procedures.

A5605

Patients with Overweight and Obesity Have a Disability

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Background: Overweight and obesity effects had been lately topics of research, because they are considered chronic diseases that cause disability. Annually, 2.6 million people die from obesity; 65% live in countries where obesity causes more deaths than insufficient weight. 42 million affected children may become obese adults, develop a disability or die prematurely. Likewise, 15% of the global population has a permanent or temporary chronic condition that limits their ability to lead a regular lifestyle. The aim of this research is to demonstrate that obesity and disabilities are not only related, but that obesity is also a disability itself. **Methods:** This study was realized in The Obesity Surgery Unit, Maracaibo, Zulia. La Sagrada Familia Clinic Center Maracaibo, Zulia with a quality-quantitative, retrospective, transversal and non-experimental method. A questionnaire was used, as well as the interview with semi structured questions in a group of patients with overweight (BMI: 25-29 Kg/m2) and obesity (BMI: ≥ 30 kg/m2) between January 2013 and April 2014. **Results:** From a cohort of 100 overweight and obese patients, male:female rate was 2:1 (66% and 33% respectively), average age 35 (range: 17-60) and BMI 52 kg/m2 (range: 29-80). Results showed up, that 100% polled and interviewed patients have had disability, including motor (95%), labor (83%), social (60%) and sexual (57%). In that regard, 97% of the patients have perceived themselves as disabled, in the motor (91%), socio-emotionally (88%) and socio-discriminative (88%) sphere. 100% of the patients reflected low self-esteem and emotional disturbances as well. **Conclusions:** The patient with overweight and obesity is disabled because of his disease. This as a result of the limitations caused by the disease, showing up as lack of general integration, exclusion and parity of opportunities. It has been observed that obese patients perceive themselves as disabled affecting their socio-emotional sphere.

A5606

Preoperative endoscopy prior to bariatric surgery: A systematic review and meta-analysis of the literature

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Background: There is currently debate regarding the role of preoperative endoscopy (EGD) in patients undergoing bariatric surgery. The objective of this study was to perform a systematic review and meta-analysis of the existing literature regarding the utility of preop EGD prior to bariatric surgery. **Methods:** An exhaustive literature search in PubMed, Embase, the Cochrane Library, Web of Science, BIOSOS, Biological Abstracts and Current Contents was constructed. The NYAM Grey Literature, Open Grey, and OIAster were searched for grey literature. A hand search of key journals and bibliography review were also conducted. Baseline characteristics including age and body mass index (BMI) were included. Patients were grouped based on EGD findings into Group 1: negative findings or findings which did not significantly change management; Group 2: findings which delayed/altered surgery. **Results:** Our systematic review yielded 28 studies encompassing 6547 patients undergoing EGD prior to bariatric surgery. Mean age was 41.4 (±2.9) years; mean body mass index was 47.1 (±3.2) kg/m2. The cohort was mainly women. 93% (n=6087) of the patients had normal EGD or EGD findings that did not have clinical consequences. 7% (n=471) of the

patients had abnormalities on EGD that potentially delayed or changed surgery. These findings included peptic ulcer disease (n=208), severe gastritis/duodenitis/esophagitis (n=103), Barrett's (n=27) and, very rarely, cancer (n=3). When excluding findings that ultimately didn't change management (e.g. large hiatal hernia, etc.), the overall incidence of clinically relevant findings on preop EGD was less than 3%. **Conclusions:** The vast majority of EGDs (97%) performed prior to bariatric surgery are normal or do not change management. A selective approach to EGD should be considered, based on the patients' symptoms, risk factors, and type of procedure planned.

A5607

ABC Study: A randomized trial of gastric banding surgery for obstructive sleep apnea

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Background: Obesity is the most common risk factor for obstructive sleep apnea (OSA) and current treatment of OSA with continuous positive airway pressure (CPAP) is often poorly tolerated. Bariatric surgery has been shown to improve OSA severity but these studies have primarily occurred in patients seeking bariatric surgery who are incidentally found to have OSA. We initiated a pilot NIH-sponsored randomized trial of CPAP versus bariatric surgery as initial therapy for severe OSA (NCT01187771). **Methods:** Adult patients with severe OSA, a body mass index of 35-45 kg/m2, and at low operative risk presenting to sleep disorders clinics were recruited. Eligible patients underwent an informational meeting with a sleep physician and a bariatric surgeon to understand treatment options. Those willing to enroll were then randomized to either CPAP therapy or laparoscopic gastric banding surgery. Follow-up evaluations to assess weight, OSA severity and OSA symptoms were performed at 9 months and 18 months following randomization. **Results:** Out of 481 patients meeting eligibility criteria, 97 (20%) expressed sufficient interest to attend the informational meeting. Of the 97 patients, 53 (55%) enrolled in the study and 49 were randomized. Of these, 57% were male, mean age was 48.4 ± 10.1 yrs, mean BMI was 39.4 ± 2.9 kg/m2, mean apnea hypopnea index was 57.2 ± 28.5 events/hr, and mean Epworth sleepiness score was 10.1 ± 4.5. Co-morbid hypertension was present in 30 (61%) and diabetes in 14 (29%). Of those randomized, 9 patients (18%) discontinued the assigned treatment and crossed-over to the other treatment, 2 due to medical reasons and 7 due to dissatisfaction with the treatment assigned. **Conclusions:** Patients with severe OSA are interested in bariatric options for treatment of their disease and can be randomized into a medical versus surgical trial. Further research evaluating the efficacy of bariatric therapies for OSA is warranted.

A5608

Retrievable Inferior Vena Cava Filter as a Preventive Measure for High Risk Bariatric Patients

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Background: High risk bariatric patients have increased chance for venous thromboembolism (VTE). Retrievable inferior vena cava filter (rIVCF) has been adopted in some institutions, in combination with VTE prophylaxis, for these high risk patients, however, to date no consensus has been proposed for its standard use in bariatric surgery. This study describes our experience with the use of rIVCFs in combination with VTE prophylaxis for high-risk bariatric surgery patients. **Methods:** A retrospective review was performed of high risk bariatric surgery patients. Patients with a prior history of deep venous thrombosis (DVT) or VTE, body mass index (BMI)>55 kg/m2 and hypercoagulable state or venous stasis disease were considered high risk. Patients underwent rIVCF placement and standard VTE prophylaxis.
Results: Thirty patients were included, mean age was 51.1±11.3 years and mean BMI was 51.4±8.5 kg/m2. In 15(50%) cases the indication for rIVCF was history of DVT; in 2(6.6%) was history of VTE; in 9(30%) preoperative BMI≥55 kg/m2; and in 11(36.6%) history of hypercoagulable state and/or venous stasis disease. Access route was right jugular vein in 28(93.3%) and 2(6.6%) right femoral vein. Mean operative time for rIVCF placement was 20.8±8.4 min. During the rIVCF placement no

complications were reported. All the procedures were performed laparoscopic or laparoscopic-robotic-assisted: 15(50.0%) gastric bypass, 12(40.0%) gastric sleeves, 3(10.0%) adjustable gastric bands. Mean surgical time was 121.5±51.3 min and mean hospital length of stay in 5.0±11.7 (range 1-12) days. Mean time between rIVCF placement and retrieval was 2.3±1.6 months (range 1-6); during this time all the patients received VTE prophylaxis. After surgery, one (3.3%) patient presented an episode of DVT and a VTE, 1(3.3%) patient failed to retrieve the filter due to technical difficulties and another 1(3.3%) had to remove the filter in a second phase due to presence of thrombus in the rIVCF. Other complications were 2(6.6%) reoperations due to incarcerated hernias and 1(3.3%) renal insufficiency. Mean follow up was 27.5±15.7 months (range 5-57).
Conclusions: Since in this study we only observed 1 rIVCF related-complication and 1 thrombotic complication, we recommend the use of rIVCF for high risk bariatric surgical patients.

A5609

Bariatric Surgery Outcomes in Centers of Excellence (COE)

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Cleveland Clinic of FL[1] Cleveland Clinic Florida[2] Cleveland Clinic FL[3]

Background: The center for Medicare and Medicaid Services (CMS) decided to abandon the requirement that bariatric surgery programs be accredited as Centers of Excellence (COE) in order to receive reimbursement, based on recent studies from the Michigan Bariatric Surgery Collaborative (MBSC) which stated that serious complications from bariatric surgery are inversely associated with hospital and surgeon procedure volume, but unrelated to COE accreditation by professional organizations.We aim to demonstrate that accredited COE, part of the Metabolic and Bariatric Surgery and Quality Improvement Program (MBSAQIP) can have lower rates of complication comparing to MBSC data.
Methods: We reviewed 4-year, prospectively collected data form MBSAQIP and published data by MBSC. Comparisons among Cleveland Clinic Florida (CCF) and MBSC were done using Xi2 and t-test.
Results: Demographics and co-morbidities seemed to be different between CCF (COE) and MBSC centers. Older age (Median 48.9 vs 46), lower BMI (42.9 vs 46) and less co-morbidities were reported for CCF .Significant differences between groups are observed considering wound complications (0.3% vs 2.7% p<0.0001), obstruction/strictures (0.2% vs 1.5% p=0.0004) and post-operative hemorrhage(0.2% vs 1.5% p=0.0004). There is a trend of lower rate of leak at COE (0.2% vs 0.6%). No significant differences were noticed in terms of re-operation or readmission.
Conclusions: The MBSC data is different from the COE collected by MBSAQIP. Generalization of conclusions from MBSC is not fair base on the findings of the present study.

A5610

Bariatric Surgery Outcomes in Patients with Systemic Lupus Erythematosus

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Cleveland Clinic Foundation[1]

Background: Systemic Lupus Erythematosus (SLE) is an autoimmune connective tissue disorder with a variety of clinical manifestations. Obesity is common among lupus patients, especially in those taking long-term corticosteroids. An increased risk of perioperative morbidity and mortality after major surgery in SLE has been reported. The effect of bariatric surgery on obese SLE patients remains unstudied.The aim of the study is to describe postoperative outcomes among SLE patients undergoing bariatric surgery.
Methods: We identified all morbidly obese patients with a SLE diagnosis who had bariatric surgery between 2005 and 2013. Data collected included baseline patient demographics, type of immunosuppressive (IS) medication, perioperative parameters, and mid-term follow-up outcomes. Patient demographics included age, sex, height, weight, body mass index (BMI), comorbidities, history of recent hospital admission due to SLE and time from lupus diagnosis to bariatric surgery. Operative data included operative time, estimated blood loss (EBL) and intraoperative complications. Postoperative and follow-up outcomes assessed

were length of postoperative hospital stay, short-term complications, change in immunosuppressive medication, BMI and excess weight loss (EWL) at follow-up. **Results:** Thirty-one morbidly obese patients who underwent bariatric surgery between August 2005 and September 2013 had a SLE diagnosis. Twenty-three subjects had laparoscopic Roux-en-Y Gastric Bypass (RYGB),3 underwent laparoscopic Sleeve Gastrectomy (SG), 3 underwent laparoscopic revisional surgery for a previously failed bariatric procedure and one underwent laparoscopic adjustable gastric banding. Mean age, Body Mass Index (BMI) and excess weight (kg) at baseline were 52.8+-9.4 years, 44.3±9 kg/m2 and 52.5+-25.7 kg, respectively. Of these 31 patients, 24 (77.4%) were taking immunosuppressive medications at the time of surgery, 6 (19.3%) had a family history of SLE and 4 (13%) reported recent hospitalization due to SLE. Early major postoperative complications occurred in 4 patients (12.9%), with 3 requiring reoperation (9.6%) due to anastomotic leakage (n=2, 6.4%) and incarcerated hernia (one patient). All of these patients were taking immunosuppressive therapy. There was no mortality. Multivariate analysis of preoperative factors identified immunosuppressive therapy to be significantly associated with postoperative complications (p=0.05). At a mean follow-up of 3 years, 13 patients (42%) showed reduction in the number of immunosuppressive medications, 10 (32.2%) had decreased steroid dosage and 6 (19.3%) were off steroids completely. The average steroid dosage reduction was 15.8±16.6 mg per day (p=0.7). After bariatric surgery, mean BMI decreased significantly to 34.2+-8.2 kg/m2 (p<0.005) and excess weight loss was 51.2+-33.4%. **Conclusions:** While further study is needed, bariatric surgery appears to be feasible in SLE patients. The results of our study suggest that weight loss after bariatric surgery is associated with decreased SLE immunosuppression medication requirements. While the benefits are clearly demonstrated, the risks are higher than average and bariatric surgery in this patient population should be approached with caution.

A5611

Early post-operative weight loss as a predictor of long term weight loss following Bariatric Surgery

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Background: Bariatric surgery is currently the most effective method of weight reduction and management in the obese patient. Although it is well documented that patients who rapidly lose weight on a lifestyle modification regimen struggle to keep the weight off, the effects of early weight loss post surgery are less well documented. This study aims to determine the value of early weight loss as a predictor for long-term prognosis following bariatric surgery. **Methods:** This was a retrospective analysis of patients who underwent bariatric surgery between December 2003 and January 2012 at a single Bariatric Centre in the United Kingdom. Their weight and BMI were calculated and recorded on referral to the surgical service and again at 6 weeks post op (early) and 24 months post op (long term). The change in weight was represented as percentage excess weight loss (%EWL) at these time points. Simple and multiple regression analysis was performed to assess the relationship between early weight loss and long term weight loss and then adjusted for Age, Sex, Weight at referral (expressed as log10) and the procedure performed.
Results: 574 patients were included in the analysis of which 439 were female and 135 male. The median (IQR) age was 45 (39-53) years, the median baseline BMI was 51 (46-57) Kg/m2 and the median excess weight carried was 69.9 (57.1-89.1) Kg. 527 underwent gastric banding, 37 had Roux-en-Y gastric bypasses, 8 sleeve gastrectomies were performed and 2 had an intragastric balloon. The median %EWL was 21.4 (15.6-28.3)% at 6 weeks and 41.8 (26.0-56.8)%. Linear regression analysis demonstrated a significant positive correlation between early weight loss and long-term weight reduction from baseline (R2=0.12, p<0.0001). This relationship was still demonstrable when adjusting for age and sex (R2=0.13, F<0.0001), age, sex and baseline weight (R2=0.13, F<0.0001) and age, sex, baseline weight and procedure (R2=0.15, F<0.0001). Multivariate analysis indicated that age (p=0.01) and procedure (p<0.0001) were statistically significant additional factors. **Conclusions:** We demonstrate that early %EWL is a significant factor in determining the success of long-term weight reduction. There

are other factors in addition to the ones explored in this study that probably determine success of the weight loss procedure and warrant further exploration. However, this relationship is useful as it allows us to identify underperformers very early in their post-operative course and optimise other modifiable factors (diet, physical activity and behaviour) that influence long-term outcome on weight loss.

A5612

Effect of Roux-en-Y Gastric Bypass and Sleeve Gastrectomy on nonalcoholic fatty liver disease: a comparative study

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Background: The prevalence of nonalcoholic fatty liver disease (NAFLD) is approximately 80-90% in morbidly obese patients. An imbalance in anti- and pro-inflammatory factors may be the underlying cause. The NAFLD Activity Score (NAS) system is a validated tool for classifying severity of NAFLD and only a few reports address the NAS score evolution after bariatric surgery. Furthermore, there is a lack of comparative data assessing various bariatric approaches and their effect on NAFLD in morbidly obese patients. The aim of this study was to assess and compare the effects of Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) on NAS scores. **Methods:** We retrospectively identified all bariatric cases between 2005 and 2012which had both intra- and postoperative liver biopsies with comprehensive NAFLD assessments. Data collected included patient demographics, NAS score, fibrosis stage, perioperative parameters and weight loss outcomes. The NAS score ranges from 0-8 and evaluates steatosis (0-4), lobular inflammation (0-3), and hepatocyte ballooning (0-2). Fibrosis stages are scored as follows: 0 (none), 1 (perisinusoidal or periportal), 2 (perisinusoidal and periportal), 3 (bridging fibrosis) and 4 (cirrhosis). Parameters for this comparative study were analyzed using paired and unpaired student's t-test for continuous variables and Chi-square test for categorical variables.
Results: We identified 25 patients with liver biopsies during the bariatric procedure and at follow-up. The cohort had a male-to-female ratio of 9:16, mean age of 51.8±11.0, mean initial Excess Weight of 100.4±62.4 kg and BMI of 60.6±20.1 kg/m2. The mean initial and final NAS scores for the cohort were 3.6±1.8 and 1.2±1.5 ($p<0.05$), respectively, with a mean initial and final fibrosis stage of 1.9±1.5 and 0.7±1.2 ($p>0.05$), respectively. In total,14 (56%) subjects had RYGB and 11 (44%) had SG. Eight patients (57%) in the RYGB group had type 2 diabetes and 4 (36%) in the SG group. Mean time from first bariatric procedure to liver biopsy was 1.5±0.7 years, with no difference in time between the RYGB and SG groups ($p=0.11$). Diabetes remission rate was not different among both groups ($p=0.11$). Initial BMI, BMI at the time of second biopsy and %EWL were significantly different between RYGB and SG groups, $p<0.05$ (51.0±13.5vs 72.7±21.1 kg/m2, 34.5±11.3vs 53.9±12.6 kg/m2 and 69.8±27.1 vs 37.2±12.3%, respectively). The absolute weight loss for each group was 49.0±22.3 kg (RYGB) and 49.5±30.6 kg ($p=0.96$). At surgery, RYGB patients had significantly higher NAS score (4.4±1.1) compared to SG patients (2.6±1.6; $p=0.01$), whereas at time of second biopsy there was no significant difference (1.4±1.7 vs 0.9±1.2 respectively, $p>0.05$). RYGB patients showed higher NAS score decrease than SG patients, but not significantly ($p=0.10$). The initial and final Fibrosis stage reported in both groups failed to identify significant differences ($p=0.3$). **Conclusions:** The results of this comparative study demonstrate no significant differences in NAS score decrease after RYGB and SG procedures though the baseline characteristics of the groups differ. Both procedures are associated with major %EWL, NAS score and Fibrosis stage downgrade. This exploratory data supports the idea of conducting a randomized trial to determine the differential effects of LSG and RYGB on NAFLD.

A5613

Bariatric Support Group Insights From 1,000 Patients

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Background: Bariatric support groups are important to long term success, yet little is known about why patients do or do not choose to participate. A recent study (Safer, Cook & Adler 2013) reports that successful bariatric

patients (>80% EWL at 5 years) participate in bariatric support groups three times more than less successful patients (<40% EWL). This study investigated patient perspectives regarding key components of support groups, their reasons for attending, preferences for structure, facilitators and topics.
Methods: Post op bariatric patients responded to an online survey assessing their participation in bariatric support groups and the impact support groups have had on their weight loss and maintenance. Respondents also provided insights on preferred day,topics and facilitators for support groups. Of the initial respondents, (30%) were less than 1 year post op,(39%) were 1 – 5 years post op and (31%) were more than 5 years post-surgery.
Results: 85% preferred a live group over web-based or telephonic groups. 67% preferred weeknights. 63% indicated that they would prefer support groups be led by a successful bariatric patient. 69% reported that support groups were essential / important to their personal success. 56% of participants indicated that they were required to attend support groups prior to surgery. 21% rated the educational content of their support group as fair or poor, 23% rated motivational content as fair or poor. Patients valued leader's genuine concern over leader's knowledge & experience. The top reasons for attending support group included personal accountability, opportunity to stay connected and educational topics & handouts. Other reasons included the opportunity to weigh-in & track progress, medical advice, and to sample / buy products.
Conclusions: This study is one of the few studies to examine patient insights and preferences regarding bariatric support groups. Understanding more about patient support needs and structuring support groups to meet those needs will increase support group participation and as a result, improve long term outcomes.

A5614

An Interdisciplinary Team Approach to Bariatric Surgery Candidate Selection: Practice Implications and Patient Outcomes

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Background: Bariatric surgery is an effective treatment for obesity, resulting in weight loss, reduced morbidity, and improved quality of life. Obesity is a complex disease requiring a pre-surgery evaluation in order to select suitable candidates. Despite these efforts, one-fifth of patients fail to achieve adequate life-long weight loss. Specific parameters for patient selection, decision-making processes, and interventions to guide patients toward suitable candidacy are lacking. We sought to assess the characteristics and outcomes of proposed interventions of identified high risk patients and to describe the development and evolution of an interdisciplinary team at an academic medical center in the United States.
Methods: A retrospective review examined the characteristics and outcomes for 94 participants who were identified as high risk candidates and presented for review by the interdisciplinary team from June 2012 to December 2013. Descriptive analyses evaluated the team's functionality in achieving three main goals: (1) increase the comfort level of program staff in bringing forth patients for team discussion, (2) development of formal processes for review, communication, and decision-making, and (3) improvement in candidacy status via proposed interventions. The 20 member team includes administrative personnel, nurses, clinical reviewer, multi-disciplinary specialists (dietitian, psychologist, others), program coordinator, practice managers, and bariatric providers.
Results: Out of 1,214 new patient consults, 94 (8%) were identified as high risk and reviewed by the interdisciplinary team. The high risk indicators in this population included: substantial psychiatric conditions (70%), barriers related to social situations (27%), substance abuse or dependence (15%), active smoking (13%), cognitive impairment (10%), and other behavioral characteristics (16%). Several patients demonstrated multiple high risk indicators. The patients were also categorized into four groups based on risk indicators and outcomes of interventions. Thirty-seven (39%) patients proceeded to surgery after successful completion of team interventions. Sixteen (17%) patients were deemed unsuitable candidates due to complex, serious conditions and were offered minimal or no interventions. Twenty-eight (30%) patients failed to follow through with team recommendations or communicated their intent to stop the work-up. Eleven (12%) patients remain active in the intervention phase. The

functionality of the team improved over time by increasing the number of patient reviews from 4 during the first three months to 15 during the last three months of meetings. A project charter was adopted outlining team structure, responsibility, communication, and decision-making processes within six months of the first meeting. **Conclusions:** An interdisciplinary team approach to patient selection demonstrated effectiveness in identifying and implementing therapeutic interventions in 39% of high risk patients who progressed to surgery as suitable candidates. The early identification of 11% of patients as unsuitable candidates was additionally supported. Successful development of the team resulted in an increase volume of identified patients reflecting the comfort level of team members, standardization of high risk categories, and application of common interventions based on previous patient outcomes. Continued study is necessary to better define bariatric surgery candidate selection and to assess long-term outcomes.

A5615

Insurance-mandated medical weight management programs do not improve bariatric surgery outcomes

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Background: Many insurance companies require 3 or 6-month medical weight management (MWM) programs for bariatric surgery approval. There is minimal literature supporting this practice. The objective of this study was to assess the effect of insurance-mandated MWM programs on weight loss outcomes in a bariatric surgery population. **Methods:** A retrospective review of all bariatric surgery cases performed between 2009 and 2013 was conducted. Patients were stratified by payor mix based on whether the insurance company required MWM or not. To control for differences between groups, a bucket matching algorithm was used to match patients based on gender, age, body mass index (BMI), and surgery type (sleeve gastrectomy, gastric bypass and gastric band). A regression model was created to estimate percent excess weight loss (%EWL). **Results:** A total of 1432 bariatric surgery patients were analyzed. The matching algorithm resulted in 560 total patients for final analysis. Mean age and BMI were 41 years and 43 kg/m2, respectively and 91% were female. The regression model showed no significant differences in %EWL between the MWM group and the usual care group up to two years. **Conclusions:** Insurance-mandated MWM programs do not appear to improve weight loss outcomes after bariatric surgery.

A5616

Triggering events of obesity

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Background: Significant personal life events may lead to change in mood states, food exposure, physical exercising decrease and immobility. Assessment of the actual impact of these events may allow for specific population counseling and preventive planning strategies on a large scale. **Methods:** A 5 domain questionnaire was given to all patients with a BMI ≥ 30 m/kg2 who presented to our general and bariatric surgery clinic during the study month. The questionnaire objectively addressed: period time of obesity, weight gain, and the main factor which they believe has contributed to their weight gain. **Results:** Thirty four out of 90 (37.8%) agreed to answer the questionnaire, 56% of which were females with a median age of 49 (range 19-76), median BMI of 47.2 (range 30-69). The majority (91.3%) has been obese over 5 years, p=0.06. Pregnancy has been pointed as the most common triggering event of obesity (38.6%) followed by finances (24.1%) and divorce (17%). Finances was also pointed as a secondary aggravating issue by 55.9% of the patients (n=19), p=0 .08. Seventy three percent of the subjects stated that they have not changed their eating habits, (p=0.09) and 68.4% reported that exercising habits have not changed significantly following the pointed event, p=0.12. Nine patients (26.5%) reported that they have deteriorated both eating and exercising habits subsequently to the indicated event with 91% of these patients (n=8) being in the group that have gained over 100 pounds since the indicated

triggering event, p=0.23. **Conclusions:** This initial data has presented pregnancy and financial matter as being the main reason for excessive weight gain and/or eating disorder among the bariatric population. Larger sample is on going and may clarify the impact of those events on the change in exercising and eating habits.

A5617

The Three R's of Hernias of Morgagni: Relevance, Recognition, and Repair

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Background: Hernias of Morgagni are infrequent, accounting for 3% of hernia repairs. However, they have the potential for incarceration and bowel obstruction which can certainly result in postoperative complications after bariatric surgery. Many patients are asymptomatic, although chest radiograph can mistake these hernias for anterior mediastinal masses. Bariatric surgery encompasses a group of frequently performed operations on patients that tend to mask pathology. As a result, bariatric surgeons need to be aware that they will encounter these retrosternal diaphragmatic hernias in the course of their practice. **Methods:** We conducted a retrospective review of a single surgeon's experience performing laparoscopic bariatric surgery including laparoscopic Roux-en-Y gastric bypass (RYGB), laparoscopic vertical sleeve gastrectomy (VSG), and laparoscopic adjustable gastric banding (LAGB). We identified patients that were found to have both asymptomatic and symptomatic hernias of Morgagni and reviewed the timing of intervention and technique of repair. **Results:** Three patients were found to have hernias of Morgagni. The initial patient had a laparoscopic RYGB for morbid obesity. At the time of operation, a large asymptomatic hernia was identified filled with her greater omentum and colon. The RYGB was performed without repairing the hernia. It was documented in the chart and she was notified of its presence. Several years later, she became symptomatic and elective laparoscopic herniorraphy was performed utilizing a lightweight dual sided mesh repair, suturing the mesh to her diaphragm and abdominal wall after hernia sac excision. She has had no further symptoms or evidence of recurrence. A second patient was also found to have a large hernia filled with transverse colon and omentum at time of her VSG. She became symptomatic four months later. Her diaphragm was sutured to her abdominal wall after hernia sac excision with interrupted mattress sutures. She has had no further symptoms. A third patient was found to have a moderate sized defect at the time of her VSG. To avoid the need for a second operation, the defect was closed with sutures during the same operation. She has had no subsequent symptoms. **Conclusions:** Although hernias of Morgagni occur infrequently, bariatric surgeons will encounter patients with them. Some of these hernias may be amenable to primary repair at time of initial operation. Others will require interventions after the patients have lost weight. It is important to document presence of the hernia in the operative report and inform the patient so that it will be in the differential diagnosis should the patient become symptomatic at a later date. Surgeons should be aware of the existence of these hernias, associated radiographic findings, and be familiar with various approaches to both timing and technique of repair.

A5618

A Surgeon Cost Report Card for bariatrics: Behavioral economics applied to surgical cost containment

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Background: The recent development of Bariatric Centers of Excellence has improved both quality and access to bariatric surgical care. With demand continuing to grow and rising rates of obesity, there is a need to contain costs in order to ensure long-term sustainability. Benchmarking and performance feedback programs have been successful at improving the quality of health-care, thus application of these strategies to cost reduction is justified. We sought to develop a resource capable of providing timely cost-performance feedback to bariatric surgeons. **Methods:** A data extraction program that integrates with our current cost reporting system was developed and employed to create a

database of disposable item usage in bariatric cases. Report cards could then be generated by querying the database and displaying the results in a specified template. Report design was informed by the MINDSPACE framework, a behavioral economics tool that outlines important elements in behavior modification. **Results:** The resulting report card is an HTML-formatted email (Appendix 1) with a unique aesthetic meant to encourage behavior change. A text-only, mobile-compatible design maximizes usability. Cost data is aggregated into averages and subdivided by item categories (e.g. stapler reloads, shears, sutures, etc.), providing salient information that can be easily interpreted. Participants are shown both individual data as well as group averages, promoting comparison to the group norm. Intuitive colour-coding is used to direct attention towards the most relevant information. It also reinforces the goal of cost reduction, taking advantage of the competitive culture intrinsic to surgical practice. Positive feedback is further enhanced by providing information about the best performer in the group, supporting healthy peer-to-peer competition. Privacy is protected by restricting information on others' performance to a group average, mitigating the risk that negative experiences could contribute to attrition. Automation of the data-processing required to generate the report card enables deployment as soon as the data is available, facilitating timely feedback. **Conclusions:** We have developed an innovative cost-performance feedback mechanism for bariatric surgery that is currently being piloted at our institution. Evaluation at 3- and 6-month intervals is underway to determine the effectiveness of this intervention at reducing surgical costs without compromising high quality care. Next steps will include incorporation of quality metrics, including operating times, into the report card format. In the long term, cost containment will ensure that patients have equitable and timely access to bariatric surgery. Novel tools that increase physician awareness of resource utilization and expenditure will help increase transparency and accountability in health care systems.

A5619

Patient versus physician variation in perceived clinical usefulness and costs of a bariatric surgery prognostic engine.

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Background: In deciding whether or not to have bariatric surgery, and which operation is best, morbidly obese patients consult many sources, including print and TV/radio media, libraries, internet, family and friends, primary providers, and bariatric surgeons. Available information describes average weight loss and resolution of obesity co-morbidities, but does not prognosticate outcomes for individual patients. A recent program uses pre-operative data from individual patients to predict weight/weight loss and co-morbidity status two years in advance for five weight-loss operations. This study evaluated variations between providers and patients regarding their perception of the clinical value and usefulness of bariatric surgery prognostication.
Methods: In an anonymous voluntary survey, physicians and other providers, patients, friends and family read a description of a bariatric surgery results prognostic program and of what it predicted. Volunteers then completed a survey regarding their opinion of the program. Information collected included clinical role (physician, nurse, post-operative bariatric patient, patient considering weight-loss surgery, friends/family, and other), whether or not the program would be used, and who should use it. Subjects answered also what the program would be worth out-of-pocket if health insurance did not cover the cost. Additional comments were collected as well. Chi-squared equation analyzed dichotomous data.
Results: 76 individuals completed the survey: 27 obese patients considering surgery, 21 post-operative bariatric patients, 3 non-obese patients, 17 physicians {9 bariatric}, 2 nurses, 2 bariatric office staff, and 4 family/friends. All respondents agreed that the advance knowledge of outcomes would help obese patients. 13/17 (76%) physicians would use program in their practices to counsel morbidly obese patients. One doctor included family and friends of obese patients. Two primary providers stated philosophical opposition to bariatric surgery but considered the advance knowledge that would be provided of sufficient value that they would use the program for counseling regardless. 100% of the bariatric patients thought overweight patients would use the program. 60% included family/friends, 46% doctors, 9% nurses, 5% dieticians, and 6% bariatric coordinators/office staff, support

groups, psychologists, case managers, clinics and insurance companies. Opinions on the worth of the program out-of pocket differed bariatric between patients/doctors: unable to estimate - 0%/40%; free - 31%/6%; up to $25 - 21%/20%; $50 and higher - 36%/0%; p < 0.001. 12.5% of bariatric patients considered >$100 up to $5,000 worthwhile for the advance knowledge. Relative value/cost of the program did not vary significantly between patients considering bariatric surgery and post-operative patients.
Conclusions: Predicting in advance weight and resolution/presence of hypertension, diabetes, sleep apnea, GERD, liver disease, and cholelithiasis following open and laparoscopic gastric bypass, adjustable gastric banding, sleeve gastrectomy, and biliopancreatic bypass/duodenal switch was embraced by physicians, patients, nurses, and allied health personnel. Doctors would use the program for patient counseling/planning/management. Patients thought more overweight patients, family/friends, doctors, nurses, allied health and office personnel, support groups, and even insurance companies all would access it. Doctors (40%) could not estimate appropriate costs for themselves or patients. More patients than doctors wanted the program free. Conversely, more patients chose $50-$5,000 as program worth.

A5620
Understanding Patients' Perception of Obesity as a Disease

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Background: Obesity is associated with a wide spectrum of co-morbidities that includes osteoarthritis, cardiovascular disease, and cancer. While there have been investigations into the self-perception of weight appropriateness there is little understanding in self-reported explanations of weight gain before deciding on bariatric surgery.
Methods: Patients who attended our bariatric surgery orientation seminar were given self-assessment questionnaires. Patients were asked the definition of obesity, co-morbidities, and reasons for delayed treatment. BMI, gender, age, and race were compared to the time elapsed.
Results: Fifty-five females and 17 males, mean age 49.2±14.4 (range 20-73), participated. Forty-three patients (53.4%) were correct in the obese definition with 12 (27.9%) classifying themselves as below obese. No differences were found in patients who had correct and incorrect definitions of obesity with respect to gender, race, or lifestyle modifications at the 0.05 level. They differ in proportion with previous problems in medical insurance regarding weight loss treatment (81.6% and 15.6%, p-value = 0.01) and the proportion that waited 10 or more years from the start of obesity to the moment they consulted bariatric surgery or less than 10 years (68.4% and 28.7%, p-value = 0.01). Prominent reasons for weight gain in these two groups were pregnancy (37.7%) and chronic pain (20.8%), p-value = 0.03
Conclusions: Denial from medical insurance is a major reason that caused patients to delay bariatric consultation. This has caused postponement in bariatric consultation of 10 or more years. Pregnancy among women and chronic pain from both genders were cited reasons of weight gain.

A5621
Mandatory Preoperative Weight Management Increases Thirty-Day Readmission Rate After Bariatric Surgery

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Background: Although no longer required by many insurance companies, some still require documented medical weight management for 6-9 months prior to bariatric/metabolic surgery. There is little evidence to support this policy except to discourage patients from seeking care. We sought to evaluate the effect of this policy on our 30-day readmission and complication rate.
Methods: Retrospective chart review of a prospectively maintained data base of patients undergoing bariatric surgery was performed. The 30-day readmission data for 453 (38.3%) patients with and 730 (61.7%) patients without preoperative weight management, who underwent primary bariatric surgery from March 2012 to November 2013, were analyzed. Patients underwent weight management outside of our practice.

Results: There were no significant differences in age, sex, race, body mass index, comorbidities, and procedure types in patients with and without preoperative weight management. The 30-day readmission rates for all causes were higher but not significantly different in patients with preoperative weight management than those without [8.39% vs. 6.44%, odds ratio 1.33 (0.85 to 2.08) P=0.208]. The 30-day readmission rate for dehydration was significantly higher in patients with weight management than those without [3.75% vs. 1.10%, odds ratio 3.52 (1.50 to 8.22) P=0.004]. This difference was true for patients with Roux-en-Y gastric bypass [3.53% vs. 1.28%, odds ratio 2.82 (1.10 to 7.24) P=0.03], and more pronounced for patients who underwent sleeve gastrectomy [5.10% vs. 0.66%, odds ratio 8.12 (0.93 to 70.57) P=0.058].
Conclusions: Weight management prior to bariatric surgery impacts the 30-day readmission rate after surgery. It increases the readmission rate due to dehydration significantly. Mandatory preoperative weight management prior to bariatric/metabolic surgery should be abandoned.

A5622
The cost of the waiting line for a bariatric surgery in the Brazilian public Hospital.
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Background: Obese people on low incomes are getting far less access to weight-loss surgery than people on high incomes with private health insurance. Brazil's obesity problem is something of a taboo topic.In Brazil, two national surveys of adult population showed that overweight and obesity prevalence rates has increased over the past 4 years, from 43% to 48.1% and from 11% to 15% for overweight and obesity respectively and the costs are substantial, although unknown in most health systems.This study aimed to provide an estimate of the direct costs associated to care of morbid obesity and obesity related diseases in the "waiting line" vs surgical intervention treatment.
Methods: Retrospective review of the cost of 400 patients who had a laparoscopic gastric bypass (GB) in the public hospital and costs attributable to obesity-related disease in 400 morbid obesity patients in the "waiting in line" for a surgery (WL) it was compare from december 2010 to december 2013. Outcomes reported included all the cost and results in both groups in tree years.
Results: The estimated total costs in tree years with all diseases related to WL group are US$ 6,1 million; US$ 4,08 million (68% of total costs) due to medications (Hypertension, diabetes et.) and hospitalization; Tree patients died in this group. The cost for the “surgical” group it was US$ 5 million in the first year (cost of the surgery) and US$ 190 thousand a year. Total in the "surgical group" it was US$ 5.280 million. No dead or complications.
Conclusions: Bariatric surgery had been listed on the Medicare Benefits Schedule for 20 years in recognition of its cost-effectiveness, many public hospitals that were mostly funded by the states did not offer the procedures. The results confirm that overweight and obesity carry a great economic burden for Brazilian health system and for the society. The surgical option it was a less cost and safe life's. This study present an opportunity for public health to move away from the medical paradigm of cost in public system.

A5623
Differences in Open vs Laparoscopic Gastric Bypass Mortality Risk Using the Obesity Surgery Mortality Risk Score (OS-MRS)

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Background: : The OS-MRS was developed to ascertain preoperative mortality risk of patients having bariatric surgery.To date there has not been a comparison between open and laparoscopic operations using the OS-MRS.
Methods: : The 90 day mortality of 2467 consecutive patients who had primary open (1574) or laparoscopic (893) Roux en Y gastric bypass (RYGB) performed by one surgeon was determined. Univariate and multivariate analysis using 5 OS-MRS risk factors including BMI, gender, age > 45, presence of hypertension and preop DVT risk was performed in each group. Each patient was placed in 1 of 3 OS-MRS risk classes based upon the number of risks; A (0-1), B (2-3) and C (4-5).

Results: : Preop BMI and DVT risk factors were significantly greater in open patients. Preop age was significantly greater in lap group. There were significantly more class B and C patients in the lap group.90 day mortality rates for open and lap patients were 1.0% and 0.9% respectively.Pulmonary embolism was the most common cause of death. All deaths in lap patients occurred during first 4 years of that experience. Mortality rate by class; A =0.1%; B =1.5%; C =2.3%.The difference in mortality between class B and C patients was not significant. Univariate analysis in open group showed that BMI,age, gender and DVT risk were significant predictors of mortality. In lap group only BMI and DVT were significant predictors of death. Presence of hypertension was not significant in either group. Multivariate analysis excluding hypertension showed that age was predictive of mortality in open patients while BMI(p =0.057)and gender(p =0.065)approached statistical significance. Conversely, only BMI was predictive of mortality in lap group with age approaching significance(p =0.058).In multivariateanalysis DVT risk was not predictive of mortality in either group.
Conclusions: There are significant differences in the predictive value of the OS-MRS between open and lap RYGB. Although lap patients were significantly older vs open patients,age was not predictive of mortality after lap RYGB. BMI trended towards increased mortality risk in both groups. Changes in technique and protocol likely contributed towards no mortality during the last 6 years of our lap experience.

A5624

Patient Race and Other Predictors of Weight Loss Two Years After Bariatric Surgery

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Background: Weight loss surgery (WLS) can produce substantial weight loss but may be less effective in certain racial minority and other subgroups. Identifying baseline predictors of poorer weight loss outcomes can help target efforts at groups at greater risk for less optimal outcomes.
Methods: We interviewed by phone consecutive patients (pts) who sought and underwent WLS at 2 centers (70% response rate) and assessed baseline demographic, clinical, and behavioral factors that might be associated with weight loss post-WLS. Weight loss was abstracted via chart review. We conducted multivariable hierarchical repeated measures analyses clustered by patient to identify baseline demographic, clinical and behavioral predictors of percent weight loss at 1 and 2 years post-WLS.
Results: The mean percent weight loss at 1 year was 25.4% (83% retention; bypass n=240, band n= 204) and 27.1% at year 2 (63% retention; bypass n=181, band n= 158). After adjustment for age, sex, baseline BMI, education, recruitment site, and WLS type, African American pts [-4.34% (95% CI -2.1,-6.6) of initial weight] and Hispanic [-2.6% (95% CI +0.6 , -5.7)] pts lost less weight than Caucasian pts, although only differences between African Americans and Caucasians were statistically significant. Patients with DM [-2.6% (95% CI -0.8, -4.3)] and back pain [-1.3% (95% CI -0.0, -2.5)] at baseline also experienced less weight loss as did those who perceived greater difficulty with reducing dietary fat intake at baseline. While African Americans reported greater difficulty making dietary changes, sequential adjustment for relevant diagnoses and difficulty with dietary change did not ameliorate racial differences in weight loss. Interestingly, baseline physical activity and eating behaviors, smoking, heavy drinking, mental functioning or mental health diagnoses were not associated with weight loss.
Conclusions: African American pts lost less weight up to 2 years post WLS as did pts with diabetes and back pain and those who perceived greater difficulty reducing fat intake at baseline. However, baseline clinical and behavioral factors did not explain racial differences in weight loss.

A5625

Hematology variables and iron metabolism one month after bariatric surgery according to surgical technique: sleeve or bypass.

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Lasagni *Mendoza Mendoza*, Romina Palma *Mendoza Las Heras-El challao*, Cecilia Penutto , Sonia Omelanczuk Elpidio Gonzalez y Tuyuti[1]

Background: Chronic inflammation induced by obesity causes iron homeostasis alteration producing iron deficiency and mild to moderate anemia.Post-operative anemia can occur in a major percentage of patients, probably due to blood loss, lack of red blood cells production, and/or nutrients deficiency. Besides, bariatric surgery is a long-duration inflammatory stimulus in itself.There are no studies assessing hematology variables and iron metabolism or any according to surgical technique 1 month after surgery
Methods: Chronic inflammation induced by obesity causes iron homeostasis alteration producing iron deficiency and mild to moderate anemia.Post-operative anemia can occur in a major percentage of patients, probably due to blood loss, lack of red blood cells production, and/or nutrients deficiency. Besides, bariatric surgery is a long-duration inflammatory stimulus in itself.There are no studies assessing hematology variables and iron metabolism or any according to surgical technique 1 month after surgery
Results: GBP Group: 38 patients (42.7%), at preOP Hto: 42.2% ± 5; Hb: 14.4 g/l ± 1.7; Transferrin Saturation: 24.9% ± 10.8 and ferritin: 121.2 ng/ml ± 110.7. At post OP it was observed a decrease of: Hto 40% ± 4(p:0.022), Hb 13.2 g/l ± 1.2 (p:0.08) and a ferritin increase of 207 ng/ml ± 184.3 (p:0.003). GS Group: 51 patients (57.3%), at preOP Hto: 41.6% ± 3.6; Hb: 13.9 g/l ± 1.2; ferritin: 143.9 ng/ml ± 106.6. 1 month after surgery: Hto: 41% ± 3.7 (p: NS); Hb: 13.6 g/l ± 1.3 (p: NS); ferritin: 251.4 ng/ml ± 156.6 (p: NS).
Conclusions: One month after surgery, only gastric bypass patients presented a significant decrease in Hematocrit and Hemoglobin accompanied by an increase of ferritin.

A5626

Implementation of Bariatric Surgery Center of Excellence Programs in a Large Municipal Health System Did Not Reduce Access for Minority Patients

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NYU Medical Center/Bellevue Hospital Cen[1] Health and Hospitals Corporation[2] Harlem Hospital Center[3] Jacobi Medical Center[4]

Background: In 2010, hospital reimbursement for New York State Medicaid members receiving bariatric surgery was restricted by the Centers for Medicare and Medicaid Services (CMS) to facilities certified as Centers of Excellence (COE). There has been debate whether this requirement restricted access to bariatric surgery, especially for underrepresented minorities. Our municipal health care system is the largest municipal health care system in the US and has been offering bariatric surgery since 2002, primarily to Hispanics and non-Hispanic Blacks with Medicaid. The objective of this study was to address the impact of COE certification on access to bariatric surgery for our patients.
Methods: A retrospective review was conducted of all patients undergoing bariatric surgery at three hospitals in our health care system (Health and Hospitals Corporation) from 2002 thru 2013. Analysis was done before and after implementation of COE, which occurred in 2010. Data points included bariatric case volume, proportion of patients who were Hispanic or non-Hispanic Black, proportion of patients insured by Medicaid/Medicare, and 30-day readmission and reoperation rate.
Results: A total of 4205 bariatric surgery procedures were performed in this time frame, including 1294 before COE implementation and 2911 after COE implementation. Average age and BMI were 39 years and 46 kg/m2, respectively. The vast majority of procedures were performed in a primarily Hispanic or non-Hispanic Black population insured by Medicaid/Medicare. When comparing the demographics pre-COE vs. post-COE, we did not see any evidence of reduced access to care for underrepresented minorities. The readmission rates and reoperation rates decreased after COE implementation.
Conclusions: The COE requirement established in 2010 by CMS did not reduce access to care for underrepresented minorities seeking bariatric surgery in our urban safety-net system. In our system, it facilitated safe expansion of bariatric surgery services.

A5627

Neck circumference strongly correlates with difficult endotracheal intubation in obese patients with obstructive sleep apena undergoing bariatric surgery.

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Background: Obesity may predispose to obstructive sleep apnea (OSA) by fat accumulation around the neck, resulting in increased extra luminal pressure which leads to upper airway collapse. It is believed that obesity and OSA are independent risk factors for difficult tracheal intubation. The Mallampati score and neck circumference had been demonstrated as predictors of difficult intubation in obese patients. The aim of the study is to evaluate the risk for difficult endotracheal intubation in patients with obesity and OSA who underwent bariatric surgery.
Methods: All obese patients with OSA who underwent bariatric surgery between 2005 and 2013 were included. For the analysis, difficult tracheal intubation was considered when the Cormack Lehane score was III or IV at the moment of laryngoscopy or when more than 2 attempts were necessary for intubation. Microsoft Excel and IBM® SPSS® Statistics version 21.0 was used for analysis. Univariate and bivariate analysis were performed to assess variables distribution and potential statistical associations/correlations. Any p value ≤0.05 was considered as statistically significant for a two-tied analysis.
Results: From a total of 767 obese patients undergoing bariatric surgery, 149 (19.4%) fulfill the clinical diagnosis of OSA using a modification of the STOP-BANG questionnaire. One hundred and two patients were male (68.5%). Mean age was 43.2±11.4 years and mean BMI was 43.2±6.8 Kg/m2. Snoring was present in 96.6% of the patients. 75.8% of the patients were using CPAP. In the preoperative evaluation, 35/86 (41%) males had Mallampati III-IV whereas only 8/40 (20%) females had III-IV (Kendall's tau-b p=0.043). Mean neck circumference was 43.5±4.9cm. A total of 116 patients had a neck circumference >40cm. The number of patients with difficult intubation was 24. In 17 the diagnosis was based on Cormack´s grade III or IV. It was based on more than 2 attempts in 1 and in 6 patients for the combination of both. All patients requiring more than 2 intubation attempts were male. Correlation between Mallampati and Cormack was not significant (rSpearman=0.22, p=0.11). On the other hand the correlation between Mallampati and the number of intubation attempts was significant (rSpearman=0.33, p<0.0001). The correlation between the number of attemps and with Cormack degree was highly significant (rSpearman=0.47, p<0.0001). There was also a close correlation between neck circumference and Mallampati (rSpearman=0.31 p<0.001), Cormack (rSpearman=0.26 p<0.035) and number of attempts (rSpearman=0.25, p=0.004).
Conclusions: Based on our results OSA was present in 19.4% of obese patients. OSA and higher Mallampati grades were statistically more frequent in males. Difficult intubation was observed in 24 (16%) OSA patients, 19 (82.6%) were male. More than 2 intubation attempts was highly correlated to male sex, neck circumference >40cm and Mallampati III or IV, therefore special care needs to be taken in this high risk population.

A5628

"A Comparison of Weight Loss Treatment Methods in a Small Clinic Setting: A Retrospective Chart Review"

By: Kari Uusinarkaus, M.D., Jennifer Ziegenbein, PA-C, Kelly Smith, M.S., R.D., Susan Harms, R.D., C.D.E., and Nicole Leth, MPH

Nicole Leth *Colorado Springs CO*
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Background: Background: The CDC states that currently 34.9% of US adults are obese. The percentage of US adults that are overweight or obese combined is a staggering 69.2%. The National Institute of Health recommends weight loss therapy in patients with a BMI of 30 or greater and those with a BMI between 25 and 29.9 with co-morbidities. The recommended therapies include: diet therapy, physical activity, behavior therapy, pharmacotherapy, and weight loss surgery. Current research on these various treatment methods shows that behavior therapy combined with other weight loss treatment methods is more effective than behavior therapy alone.
Methods: Methods: This study is a retrospective chart review of patients receiving weight loss

therapy in a small clinic setting. Patients all had a BMI greater than 30 at baseline. Weight loss and BMI were evaluated at 4 months and 8 months of treatment. The first group received behavior therapy alone in the Medicare Intensive Behavior Therapy program (MIB) meeting with a provider both individually and in a group setting. The second group received behavior therapy (individual and group) along with pharmacotherapy. The third group received behavior therapy (individual and group) along with meal replacement treatment. **Results:** Results: The group receiving behavior therapy only (MIB) (n=15) had an average age of 67, average BMI of 39.5 at baseline, average weight loss of 10.1 lbs at 4 months with an average percent of weight loss of 4%. At 8 months (n=12), the average weight lost was 14 lbs with an average percent of weight loss of 5.8% and an average BMI of 37.4. The second group (n=5) receiving behavior therapy along with pharmacotherapy had an average age 42, average BMI of 36.3 at baseline, average weight loss of 24 lbs at 4 months with an average percent of weight loss of 10.3%. At 8 months (n=4), the average weight lost was 13.8 lbs with an average percent of weight loss of 7.2% and an average BMI 30.3. The third group (n=7) receiving behavior therapy along with meal replacement treatment had an average age of 45, average BMI of 39.4 at baseline, average weight loss of 37 lbs at 4 months with an average percent of weight loss of 14.6%. At 8 months (n=3), the average weight lost was 20.3 lbs with an average percent of weight loss of 8.5% and an average BMI of 39.6. **Conclusions:** Conclusion: In this retrospective analysis, the behavior change treatment arm led to the greatest percentage of sustained weight loss in the trial period. Behavior therapy combined with other treatment methods yielded significant results at the 4 month mark but were then associated with some re-gain of weight by month 8. All methods produced significant weight loss (loss of 5% to 10%) which is associated with benefits in cardio-metabolic parameters. Treatment of obesity by behavior therapy alone can be a very effective treatment to sustain weight loss.

A5629

Adult- diagnosed variant phenylketonuria, masquerading as aspartame intolerance after bariatric surgery

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Background: Phenylketonuria (PKU) is a rare inborn disorder involving phenylalanine (Phe) metabolism. Normal conversion of Phe to tyrosine (Tyr) is impaired and elevated plasma Phe results in mental retardation, microcephaly, delayed speech, seizures, eczema and behavioral abnormalities. Classic PKU presents with levels of Phe > 1200 µmol/L, whereas cases of non-classic, or PKU- variants present with Phe levels < 600 µmol/L. Here we present a case of variant PKU diagnosed in adulthood after bariatric surgery. **Methods:** A 31 year old female with medical history of obesity was referred to our service with aspartame intolerance, nausea, vomiting, dehydration and malnutrition. The patient underwent a laparoscopic Roux-en-Y gastric bypass surgery 2.5 months prior to her presentation. The patient had normal early development but was diagnosed with dyslexia at the age of 4. She attended special education and achieved a high school level of education. Family history was negative for PKU. Prior to surgery, she avoided aspartame- containing foods because they produced crampy abdominal pain and vomiting. However, she tolerated both vegetable and animal sources of protein. She developed crampy abdominal pain and vomiting postoperatively, after consuming protein supplements as part of the bariatric protocol. Her symptoms progressed to the point that she was unable to tolerate any oral intake. She was admitted, given IV fluids and offered parenteral nutrition. As a precaution, we ordered a quantitative plasma aminoacid profile to rule out variant PKU, which revealed an elevated level of Phe at 120 nmol/ml (normal range 35-80), decreased level of tyrosine (Tyr) at 27 nmol/ml (normal range 31-90) and elevated Phe/Tyr ratio of 4.4 (normal <3). These findings are consistent with variant-PKU. The patient was subsequently found to have symptomatic gallstones, and had laparoscopic cholecystectomy, with resolution of her abdominal complaints. **Results:** Newborn screening for PKU has been mandatory in the US since the early 1960s. However, missed PKU cases have been identified in previous reports. Clinical outcomes of untreated individuals are largely dependent on genotype, with majority of mild cases of

phenylalaninemia (< 360 µmol/l) exhibiting normal development. It is unclear if elevated levels of Phe during childhood contributed to learning disabilities in our patient. Acute hyperphenylalaninemia has been shown to cause vomiting and agitation. Although our patient was tolerating a regular diet before the surgery, it is possible that formulations of protein derived from supplements caused enhanced absorption of aminoacids, resulting in higher elevation of serum Phe concentration. **Conclusions:** High intake of protein supplements after bariatric surgery can precipitate previously undiagnosed metabolic conditions. Variant-PKU should be suspected in aspartame sensitive bariatric patients presenting with abdominal pain and vomiting.

A5630

Prevalence of Helicobacter pylori Infection Among Morbidly Obese Inner City Adolescents

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Background: Helicobacter pylori infection is present in 24–67% of adult bariatric patients. In addition, in a U.S. population based study, the prevalence was 24.8% among 6-19 year olds and higher among African Americans (40.1%) and Mexican Americans (42%). Patients considering bariatric surgery are routinely tested for H. pylori regardless of symptoms to prevent complications after gastric surgical procedures. Our study assesses the prevalence of H. pylori infection in morbidly obese inner city teenagers considering bariatric surgery in order to determine if there is an association of infection with BMI and obesity-related comorbidities. **Methods:** A single-institution, IRB approved, retrospective chart review was performed for adolescents between 16 years and 22 years of age who had a BMI of ≥ 40 and were referred to the adolescent bariatric surgery clinic of a tertiary care pediatric hospital between June 2012 and April 2014. Serum immunoglobulin G antibodies against H. pylori were measured by an enzyme-linked immunosorbent assay. Patient demographics, esophagogastroduodenoscopy findings, history of gastrointestinal symptoms, concurrent medications, baseline laboratory tests, and co-morbidities were documented. Bivariate analyses were performed using Students t-test, Mann-Whitney U test, Chi-square test and Fischer's exact test where appropriate.
Results: Between June 2012 and April 2014, 35 patients underwent testing for H. pylori antibodies. The median age was 18 years (range 16-21 years). There were 25 female and 10 male patients, of whom 4 were of African American and 31 of Hispanic descent. The median BMI for the group was 48.7 [quartile range, 44-52.8]. By gender, the median BMI was 47.1 [43.6-49.2] for females and 52.65 [50.5-60.7] for males. Ten patients were positive for H. pylori antibodies (prevalence 28.57%). There was no statistically significant association of antibody positive status with BMI for the group as a whole or by gender, although patients positive for antibodies had a lower BMI on average (mean, 46.58 vs. 50.6, p value non significant). When divided into obesity categories (category 1, BMI 40-49.9; category 2, 50-59.9; category 3, ≥60), there was no association between antibody status and BMI category, although no patients with a BMI over 60 were positive for antibodies (association non significant). When analyzed by BMI category and comorbidity (diabetes, sleep apnea, and hypertension), no association with H. pylori antibody status was seen. **Conclusions:** This study found no statistically significant association between BMI, BMI related comorbidities, and the presence of H. pylori antibodies, although a trend demonstrated absence of antibodies at higher BMI. Lack of significant findings may have been due to the limitations of small sample size and retrospective data collection. Interestingly, the overall prevalence (28.57%) was lower than that shown in other studies for individuals of similar ethnic and racial backgrounds in this age range. If true, preoperative testing may not need to be universal in this patient group. Further studies with larger numbers of patients and prospective data collection are needed.

A5631

The Phenomenon of Brokers in Bariatric Surgery Procedures in the Border Mexico-US

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Background: Brokerage function which brings together seekers and providers of goods, information, money, medical service,etc. Need for intermediation occurs due to the imperfect nature of markets and everyday situations where the complete ('perfect') knowledge about providers and seekers (and about what they seek) is not available to everyone.the intermediary in such surgeries has emerged as an alternative for patients who need a weight loss surgery (WLS) bacuse exist insurance obstacles for this kind of Patients, so they chose The self-pay patient, however, often faces entirely different challenges; in this sense due to low costs of surgery in mexican border cities, the broker of bariatric surgery emerged as a key figure in this market.
Methods: This is a qualitative studyIt was proposed to do semi-structured interviews on a question guide to bariatric surgery brokers living outside Tijuana and living in Tijuana Mexico. Qualitative research requires a flexible design so it was not necessary to determine the number of informants , it started with the idea to interview 10 brokers. The snowball technique that allowed select an initial group of respondents was applied , usually randomly, after interviewing those who are asked to identify others.
Results: Most brokers are ex-patients who engage with the business and make partnership with bariatric surgeons. brokers are facilitators, as are ex- patients are learning in this field, they get a fee 5 to 10% of the cost of the surgery. Their function is contact the patient who comes through recommendation from other patients and from obesity forums obesity, convince the patient about the metamorphosis in your body and life and, assist them in filling out your medical forms, ticket reservation, airport transfer to hospital, and the hotel also, the brokers help them in all the logistics. However there are two categories of intermediaries: That who only coordinate the process of contacting the patient and prepares all the surgery virtually and brokers are going to meet face-to-face to help patient throughout the process. The virtual brokers are generally from United States and Canada because they dont live in the border.Usually there is no written contract; most ex-patients become brokers do not have higher education and are generally housewives. The society between the bariatric surgeon and the intermediary has an average duration of two years and ends mainly because there is a conflict and disagreement with the fees or because the broker knows another surgeon who offers better pay.
Conclusions: The rise of bariatric surgery as an effective way to solve morbid obesity, has resulted in the emergence of brokers (ex-patients) who are specializing in this field and get patients to surgeons in exchange for a fee, creating a lucrative market where the struggle to bring patients and profit, results in a constant competition unwritten in this mexican border cities where surgeons have gained prestige and their relationships with brokers are very dynamic and changing as a function of supply and demand for this kind of bariatric surgeries

A5632

Outcomes of Bariatric Surgery in Patients with Multiple Sclerosis

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Background: Multiple Sclerosis (MS) is a progressive inflammatory demyelinating disease characterized by multiple lesions throughout the central nervous system affecting approximately 90 per 100,000 people in the US. Similar to the general population, obesity is prevalent in individuals with MS. Bariatric surgery is a safe and effective strategy for weight loss in the general population and has the potential to provide significant benefits to individuals with MS. There are few case reports addressing outcomes in patients with MS which show similar weight loss outcomes to a general bariatric population as well as improved mobility and quality of life.
Methods: This was a retrospective review of a prospective bariatric database. Patients were included if they had a preoperative diagnosis of MS. Outcomes data including weight loss, resolution of comorbidities, mobility and quality of life data, and post-operative complications were analyzed.
Results: Of 3,171 patients who had a primary bariatric procedure at our practice, 8 (0.2%) met inclusion criteria. Average age was 48.8 ± 9.5

years and the sample was 62.5% (n=5) Caucasian, and 12.5% (n=1 each) African American, Hispanic and Other. The surgical procedures in our sample were adjustable gastric band (n=5), sleeve gastrectomy (n=2) and Roux-en-Y gastric bypass (n=1). Average pre-operative BMI and weight were 44 ± 6.2 and 265 ± 34, respectively. At a mean follow-up of 58 months, the LAGB group lost 61.4 lbs, 10 BMI units, and 43%EWL. At 20 months the SG group lost 32.5 lbs, 5.5 BMI units, and 33%EWL. At 28 months the RYGB patient lost 119 lbs, 18 BMI units and 94%EWL. At similar follow-up time points, weight loss outcomes from our entire non-MS bariatric population were slightly more robust (LAGB=45%EWL, SG=42%EWL) with the exception of RYGB (76%EWL). One patient with severe esophageal dysmotility had her band removed 28 months post-operatively (maximum WL=74lbs). Following band removal, the patient gained 92lbs and subsequently underwent conversion to RYGB (37 months post-removal). Maximum WL with RYGB was 88 lbs (BMI=35). Another patient was hospitalized 24 months post-operatively for a cholecystectomy secondary to gallstone pancreatitis. Patients experienced improvement of all major comorbidity symptoms (Table 1). Two patients reported brief flare-ups of MS symptoms during their post-operative course; however, at latest follow-up all patients reported no current exacerbation of symptoms or any rapid progression of disease.
Conclusions: Bariatric surgery in patients with MS is a safe and effective approach for weight loss and comorbidity resolution, with minimal complications and need for revisional surgery. This study is unique in that it assesses outcomes of a larger sample of patients with MS undergoing bariatric surgery at a high-volume surgical practice. The authors believe that although MS symptoms are not likely to improve as a result of significant weight loss, the improved mobility as a result of significant weight loss can improve overall functioning in a patient with otherwise compromised mobility.

A5633

Reducing perioperative opioid use in laparoscopic gastric bypass patients: the power of multimodal preemptive analgesia

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Background: Bariatric surgical patients are at high risk for a myriad of perioperative complications. Achieving adequate pain control while minimizing sedation encourages early ambulation, which is a critical strategy to reduce the risk of venothromboembolism (VTE). Furthermore, since most bariatric surgical patients have obstructive sleep apnea, it is important to avoid respiratory drive suppression. The aim of this study is to examine the effect of perioperative opioid use before and after adding intravenous acetaminophen to an existing multimodal preemptive pain management protocol.
Methods: A retrospective chart review was completed on 70 consecutive laparoscopic gastric bypass patients divided into two groups of 35. Pain management in Group 1 consisted of intravenous ketorolac (30 mg) given preoperatively followed by 15 mg ketorolac every 6 hours, up to 48 hours. Intraoperatively, 60 mL 0.25% bupivacaine was distributed at the abdominal wall musculature for each trocar site prior to skin incision. Dexamethasone 10 mg was administered intravenously following induction of general anesthesia. Group 2 had the same protocol described above with the addition of 1 gm acetaminophen given preoperatively, then every 6 hours, up to 48 hours.
Results: Two patients were excluded in Group 2; one was opioid dependent prior to surgery and the second experienced postoperative bleeding which required additional surgical intervention. Both groups of patients were allowed additional parenteral or enteral opioid use as needed. No patient controlled anesthesia pumps were used for either group. Total opioid use was tracked beginning in the post anesthesia care unit and then continued during the entire hospital stay. Total opioid use was calculated in terms of morphine equivalents according to the conversion factors shown in Table 1. The results are shown below in Table 2.Morphine equivalent use was reduced by 59% with the addition of intravenous acetaminophen. Total ondasetron use was reduced by 40% although there was a slight increase in droperidol use. Postoperative pain and patient satisfaction scores were nearly identical in the two groups as was length of stay.
Conclusions: Standardized preemptive pain

control can be accomplished in patients having laparoscopic gastric bypass. Importantly, the use of patient controlled anesthesia units can be eliminated. The total inpatient morphine equivalent use can be reduced by adding intravenous acetaminophen to an existing multimodal pain management protocol. Reducing opioid use was not associated with a change in perioperative pain scores or length of hospital stay. Minimizing perioperative opioid use is an important strategy in preventing VTE complications and will help prevent respiratory depression.

A5634

Inverting the 'Corner' Decreases GERD After Sleeve Gastrectomy

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Coastal Center for Obesity[1] Sczepaniak Health and Medical Enterprises[2]

Background: Title: Background: Heartburn is the commonest complication following sleeve gastrectomy reportedly occurring in 45% of patients after sleeve gastrectomy. It has been shown that sleeve gastrectomy negatively effects lower esophageal sphincter pressure. We have been using a 'sleeve' technique previously described--Surgery for Obesity and Related Diseases 8 (2012) 364 –365--in which the upper end of the staple line is inverted to produce narrowing and prevent leaks. We noted the resolution of heartburn in a number of patients and speculated that the inversion could be acting as a pseudo-sphincter which prevented reflux. We elected therefore to review our data with respect to the preoperative and postoperative incidence of heartburn.
Methods: We reviewed the records of 131 patients who underwent sleeve gastrectomy in whom the 'inverted corner' technique was used. GERD was presumed to exist if the patient was taking appropriate medications whatever the cause or if they had appropriate symptoms.
Results: Preoperative 46/109(42.2%) patients had reflux symptoms or were asymptomatic on medications. Postoperative 28/101(27.7%)of patients had reflux symptoms or were asymptomatic on medications. There were no postoperative leaks and no postoperative deaths.
Conclusions: Inverting the upper end of the staple line reduces the incidence of GERD post-operatively and may help prevent leaks.

A5635

Title: The Effect of Remnant Resection on Ghrelin and Weight Regain After Gastric Bypass

Milton Owens *Orange CA*[1], John Sczepaniak *San Diego CA*[2]
Coastal Center for Obesity[1] St. George's Medical School[2]

Background: Background: Depending on the criteria chosen 10-20% of gastric bypass patients regain most or all of their lost weight sometime after surgery. Patients who regain weight after gastric bypass are difficult to treat: Non-surgical methods are worth a try but the patient has usually tried and failed diets and exercise several times before presenting again for surgical consideration. Many complain of a return of appetite and hunger not present immediately after surgery. Hypothetically, much of the original weight loss following gastric bypass is due to decreased ghrelin production and weight regain following bypass is accompanied by resurgence in the gastric production of ghrelin. Like gastric bypass ghrelin suppression after sleeve gastrectomy appears to be immediate but unlike gastric bypass it is long lasting. Evidence for this is apparent in a clinically observed return of appetite and increased ghrelin levels in post bypass patients. It is unknown whether any revisional surgery alters or resets the gastrointestinal signals in ways similar to the changes effected by the first operation.
Methods: Post bypass ghrelin levels were obtained through Interscience Institute. Post bypass levels are less than 120 pgm/ml. Levels obtained from bypass patients regaining weight were generally above 350 and we selected three patients whose laboratory levels and clinical symptoms appeared to be more extreme. Usual between meal hunger levels were scored on a standard scale.
Results: Results: Patient CM is a 54 year old woman, 5'7" tall, weighs 250 lbs, BMI= 39. She had an open gastric bypass approximately 20 years ago when she weighed close to 350 lbs. She has lost to 150 lbs and stayed there for approximately 15 years at which time she began to have puzzling hypoglycemic attacks and was encouraged to snack frequently as protection. She gained back to her current weight and has been unable to lose successfully since. She is 'starving to death' within minutes after eating.

Patient JCR is a 34 year old woman, 5' 6" tall, weighs 253 lbs, BMI=41. In 2005 she had a laparoscopic gastric bypass when she weighed 435 lbs. and she lost to 165 lbs but recently is experiencing constant hunger and recurrent weight gain. Patient TC is a 53 year old woman 5'7'' tall weighs 196 lbs., BMI=31. She had a gastric bypass in 2004 at which time she weighed 335 lbs. and lost to 153 lbs. She is "hungry all the time." **Conclusions:** Remnant resection produces a profound impact on ghrelin production and a significant but moderate effect on appetite and short term weight loss. Weight loss may be progressive over longer periods of time.

A5636

The Relation of Ghrelin to Hunger and Weight After Gastric Bypass and Sleeve Gastrectomy

Milton Owens *Orange CA*[1], Kyle Freiman *Bellmore NY*[2]
Coastal Center for Obesity[1] Sczepaniak Health and Medical Enterprises[2]

Background: Ghrelin is known to stimulate hunger and eating in normal and obese individuals. Moreover, levels following gastric bypass and sleeve gastrectomy tend to be consistently low and are typically elevated after gastric banding. Ghrelin determinations were a research tool but have recently become clinically available. We wondered whether ghrelin levels accurately reflected hunger intensity and weight loss or gain following gastric bypass. **Methods:** In a group of 24 post-bariatric surgery patients plasma ghrelin levels were compared to between meal hunger scores, weight gain from nadir, initial body weight and time after surgery. **Results:** 22 patients had gastric bypass and 2 had sleeve gasterectomy. Mean age, initial weight, and BMI were 41.8 yrs(SD:11.3), 327 lb.(SD=84) and 52.7(SD:0.09)respectively. Time to hunger scale and ghrelin were 9.2yrs (SD:4.6). Average weight regain was 48 lbs.(SD 31.3). Pearson correlation coefficients were calculated: Hunger increased over time(r=0.61). Also there was a moderate correlation between hunger and weight regain(r=0.4). Ghrelin on the other hand did not correlate with hunger or time after operation but did moderately correlate with preoperative weight(r=0.39). **Conclusions:** Factors other than ghrelin primarily account for subjective hunger and weight regain. Subjective hunger does relate to weight regain but factors other than hunger also contribute. Initial body weight best predicts postoperative ghrelin levels. Further studies are indicated.

A5637

The Role of Preoperative Weight loss in Sleeve Gasterectomy

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Sczepaniak Health and Medical Enterprise[1] Sczepaniak Health & medical Enterprises[2] Coastal Center for Obesity[3]

Background: The role of preoperative weight loss is well defined in facilitating bariatric procedures. The purpose of this study was to further our understanding of possible postoperative benefits to preoperative weight loss after sleeve gastrectomy. **Methods:** A retrospective review of over one hundred sleeve gastrectomy cases were screened to find patients with multiple preoperative weight measures. 28 cases were found and examined to assess the preoperative and postoperative weight loss. Percent total weight loss was calculated using weight measures closest to surgery. The earliest preoperation weight was subtracted from the preoperative weight closest to surgery to assess the preoperative weight gain or loss. This preoperative gain or loss was also divided by the weight measure closest to surgery to yield the % preoperative weight change. Linear regression was then used to assess %preoperative weight change vs. %total weight loss with and without the addition of % preoperative weight change. **Results:** Follow-up for the cases was n=19 at <2 months, n=12 at 2-5 months, and n=12 >5 months postoperation. In the first five months preoperative weight loss patients had very little difference from patients that did not lose weight preoperative if comparing using the latest preoperative weight before surgery, 8.16%TWL (R^2=0.0387) and 18%TWL (R^2=0.0073). In contrast, if adding the % preoperative weight losses or gains, the patients with preoperative weight loss performed better; For the first two months postoperation, 8%TWL plus 1% loss for every 1%loss preoperatively (R^2=0.73). This advantage remained albeit to a lesser degree at 2-5 months postoperation, 0.882% loss for every 1% loss preoperatively (R^2=0.2913). There was still a positive association at >5month of a

0.45% advantage for every 1% lost preoperatively (R^2=0.096). **Conclusions:** Preoperative weight loss is not only valuable for surgical preparation but correlates with a lower postoperative weight. The significance of this relationship may dwindle as time progresses after surgery.

A5638

Risk for metabolic syndrome in patients with normal weight, overweight and obesity based on different body mass composition parameters.

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Background: Obesity is a complex disorder currently diagnosed by the body mass index (BMI). BMI usually correlates with comorbid conditions such as the metabolic syndrome (MS). However it does not take into consideration the body composition, which may be different across populations. Lack of consistency between BMI and MS has been demonstrated. The percentage of fat mass (FM), fat free mass (FFM), and the fat mass index [(FMI= (fat mass kg)/(height m2)] may be better prognostic factors for obese related comorbidities. The aim of the present study was to assess potential correlation between body composition and the risk for MS in a Mexican population.
Methods: All patients who underwent initial clinical assessment at our obesity clinic in a five year period were included in the study. Clinical and anthropometric variables such as age, weight, height, gender, blood pressure, and waist circumference were analyzed. Body composition was assessed using bioelectrical impedance (TANITA, TBF-300A). Variables such as body weight, BMI, FM, FFM, and FMI were obtained. The statistical correlation between BMI and FMI with MS was primarily evaluated. Microsoft Excel and IBM® SPSS® Statistics version 21.0 was used for analysis. Any p value ≤0.05 was considered as statistically significant for a two-tied analysis
Results: A total of 1215 patients were included for the analysis. Mean ±SD age was 40.9 ±12.1 (15-81) years and 772 (63.5%) were female. According to the BMI 120 patients (9.9%) displayed normal weight, 193 (15.9%) were overweight, 136 (11.2%) had grade 1 obesity, 273 (22.5%) had grade 2, 390 (32.1%) grade 3, 85 (7%) were super obese, and 17 (1.4%) super-super obese. Using the BMI, the diagnosis of obesity was established in 901 patients (74.2%), whereas using the FMI 1051 were obese (86.6%). Although both indexes (BMI and FMI) were reliable to predict MS, abnormal FMI showed a greater risk for MS (OR=12.2, p<0.0001, CI95%=7.5-20.0) than BMI (OR=8.5, p<0.0001, CI95%=6.3-11.7). Risk predictability was comparable between FMI and BMI for type 2 diabetes (T2D) (OR=3.9 vs 3.5 respectively, p<0.0001), high blood pressure (OR=5.3 vs 5.9, p<0.0001) and elevated triglycerides (OR=2.8 vs 2.1, p<0.0001).
Conclusions: MS is a complex condition. Based on our results it seems that FMI is a better predictor of MS than BMI. Both indexes showed high correlation between themselves and both were comparably associated to T2D. FMI may be advantageous for assessing the risk of MS in obese patients.

A5639

Who stands to lose the most? A comparison of percent excess weight loss by BMI category among adolescents and young adults undergoing sleeve gastrectomy vs laparoscopic gastric banding

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Background: Childhood and adolescent obesity is a significant public health concern. Bariatric surgery in adolescents and young adults has been utilized to facilitate weight loss and alleviate co-morbid conditions. The literature supports that weight loss is greater in patients who undergo vertical sleeve gastrectomy (VSG) than with laparoscopic gastric banding (LAGB) however it is unknown whether there are different thresholds for weight loss among patients presenting with a body mass index (BMI) in the super obese, class III, or class II categories.
Methods: An IRB approved analysis of adolescent and young adult patients who underwent VSG or LAGB between 2006 and 2014 was conducted. Patients were subdivided into BMI categories based on their pre-operative weight. Those with BMI>50 (super obese) were

compared to those with BMI 40-49.9 (class III obesity) and with BMI 35-39.9 (class II obesity). Six month and 12 month follow up data were compared for each operation. Percent excess BMI (%EBMI) was calculated using CDC growth charts. Differences at follow up were compared using Student's t-test whereas differences between BMI categories were compared using a non-parametric Mann-Whitney.
Results: Fifty patients between the ages of 12.7 and 22.7 years (median 17.1) underwent VSG between 2010-2014. One hundred thirty-seven patients underwent LAGB between the ages of 14.3 to 19.6 years (median 17.0) between 2006-2011. Although by each BMI category weight loss at 6 months was significant ($p<0.0001$), when the absolute weight loss was compared among BMI categories there was no significant difference (Figure 1A). At 6 months patients who underwent VSG lost on average 31.7 kg and patients who underwent LAGB lost on average 13.6 kg. At 12 months post-operative VSG patients lost on average 40.6 kg and post-operative LAGB patients lost 21.7 kg. When %EWL was compared there was a significant difference between BMI categories such that those with a lower BMI category (i.e. class II obesity) were more likely to lose a higher percentage of their excess body weight either by VSG or LABG ($p<0.05$ and $p<0.0001$) (Figure 1B). The analysis of %EBMI for VSG and LAGB was also significant for those with class II obesity at 6 months ($p<0.01$, $p<0.0001$).
Conclusions: Obese adolescents and young adults successfully lost weight with either VSG or LAGB. With each operation the total amount of weight lost in the first 12 months was not significantly different based on pre-operative BMI. Predictably, patients with less excess weight achieved greater percent excess weight loss following surgery. Long term results may demonstrate relative weight loss limits to a given procedure and may guide pre-operative weight loss surgery counseling.

A5640

Long Term Effectiveness of Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass in a Latin Population

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Background: The long-term efficacy of laparoscopic Roux-en-Y Gastric Bypass (RYGB) for the treatment of morbid obesity has been previously been demonstrated. Laparoscopic Sleeve Gastrectomy (LSG) was originally introduced as the first stage for super obese patients undergoing duodenal switch. Favorable results in terms of weight loss and safety profile led LSG to become the most common bariatric procedure performed in the United States. The aim of this study was to compare the long term outcomes of LSG and RYGB.
Methods: A retrospective, comparative analysis between 578 patients that underwent RYGB and LSG at Hospital Italiano de Mendoza, Argentina between 2005 and 2013 was performed. Demographics, operative time, blood loss, early (<30 days) and late complications, reoperations, mortality and percent excess weight loss (%EWL) at 6, 12, 24 and 36 months postoperatively were analyzed.
Results: A total of 578 patients underwent surgery, 289 in each group. There were 72% and 80% of female patients in the LSG and RYGB groups, respectively. The mean age (46.6 ± 11.7 and 45.4 ± 8.8) and initial BMI (41.1 ± 9.1 and 45.9 ± 6.4) were similar in both groups (p=NS).
Conclusions: Our study shows no clear benefit of RYGB over LSG in relation to long term weight loss in the latin population. The increased operative time and morbidity of RYGB should be considered when offering patients this surgical procedure.

A5700

Impact of bariatric surgery on the metabolic syndrome using two different definitions (ATP, III and IDF)

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Background: Metabolic syndrome (MS) is a complex disorder defined by a cluster of

interconnected factors that increase the cardiovascular risk. Currently, several different definitions have caused substantial confusion as to whether they identify the same individuals. The association between morbid obesity and MS is well established. Bariatric surgery has proven a durable effect on weight loss and control of comorbid conditions. The aim of this study was to analyze the impact of bariatric surgery on MS remission according to 2 definitions. **Methods:** From a total of 779 patients who underwent bariatric surgery in an 8-year period, patients who fulfill the criteria for MS according to the ATPIII and the IDF were identified. Weight loss and remission of MS were analyzed 6, 12, 24 and 36 months after surgery. Univariate and bivariate analysis were performed to assess variable´s distribution and potential correlations. **Results:** Before surgery, a total of 401 (51.5%) and 438 (56.2%) patients fulfill the criteria of MI according to the ATPIII and IDF respectively. There were 220 (50.2%) males and 218 (49.8%) females with a mean ± SD age of 41.1 ± 11.2 and a BMI of 42.9 ± 6.5. RYGB was performed to 426 (97.3%) patients and sleeve gastrectomy in 12 (2.7%). Mean ± SD percentage of excess weight loss was 51.3±13.2% at 6 months, 72.1±26.4% at 1 year, 71.3±20.3% at 2 years, and 61.5±22.5%, 3 years after surgery. According to the ATPIII remission of the MS after bariatric surgery occurred in 237/276 (85.9%), 149/161 (92.5%), 55/61 (90.2%) and 28/33 (84.8%) at 6, 12, 24 and 36 months respectively. According to IDF this was 201/266 (75.6%), 103/129 (79.8%), 55/64 (85.9%) and 15/22 (68.2%) at 6, 12, 24 and 36 months respectively. At 6 months, patients ≤ 1 criteria for ATP III lost a greater amount of %EBWL regarding patients ≥1 criteria (54.6±12.3 vs. 45.9±11.3 respectively; p<0.0001). This observation was similar for IDF (55.6±12.6 vs. 47.5±10.6; p<0.0001). At 12 months differences were: 75.4±17.3 vs. 59.3 (p<0.002) for ATP III and 77.5±19.3 vs. 61.9±16.6 (p<0.0001) for IDF. Differences persisted with statistical significance, using both definitions at 24 and 36 months (p<0.009). Correlation between ATP III and IDF resulted also significant (p<0.0001) at 6, 12, 24 and 36 months (rSpearman= 0.72, 0.80, 0.91, 0.78 respectively). **Conclusions:** In our population, more than 55% of patients undergoing bariatric surgery have MS. In a significant number of patients, the MS resolves after bariatric surgery. Remission rate is higher using ATP III than the IDF criteria in all the time periods. Due to fewer rigors, IDF criteria resulted in classifying more patients with MS than ATP III. Both criteria predicted significant percentage of EBWL in our patients. Both scales did show a high correlation at the different evaluation moments.

A5701

The Impact of Bariatric Surgery on Diabetic Retinopathy: A Systematic Review and Meta-Analysis

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Background: Significant reductions in glucose control immediately post bariatric surgery in patients with longstanding poor glycemic control can lead to the paradoxical progression of diabetic retinopathy (DR) in susceptible individuals. Bariatric surgery results in dramatic and immediate diabetic control post-operatively. We aimed to systematically review the literature to assess the effect of bariatric surgery on DR. **Methods:** A comprehensive search of electronic databases (e.g., MEDLINE, EMBASE, SCOPUS, Web of Science and Cochrane Library) was completed. All randomized controlled trials, non-randomized comparison study, and case series were included. Inclusion criteria included English speaking studies, enrolling >5 patients, and containing ophthalmological data on pre and post bariatric surgery DR outcomes. Two independently reviewers screened abstracts, reviewed full text versions of all studies classified and extracted data. Comparison studies in the meta-analysis were assessed for methodological quality using Cochrane Risk of Bias tools. Disagreements were resolved by re-extraction, or third party adjudication. Where possible and appropriate, a meta-analysis was conducted. **Results:** A total of 277 studies were identified using our search criteria for screening. 5 primary studies (n = 194 patients) met our inclusion criteria and were included in the systematic review. These included no randomized controlled trials and 5 nonrandomized controlled studies. Patients with no pre-operative DR (n=112), following bariatric surgery, an average of 91.1% ± 6.6% remained disease free while 8.9% ± 6.6% of patients progressed to DR. Patients with diabetic retinopathy pre-operatively

(n=82), following bariatric surgery, an average of 50.0% ± 23.5% of patients had no change, 25.6% ± 17.6% of patients had deterioration, and 24.4% ± 16.5% of patients had improvement in their disease. **Conclusions:** Progression of diabetic retinopathy is a significant issue post-operatively following bariatric surgery. Patients with a diagnosis of DR prior to surgery are at increased risk of further deterioration in their disease and should receive adequate counseling and evaluation prior to undergoing a surgical procedure. However, the few primary studies in this systematic review limit any conclusion. Further studies are needed to further evaluate these results.

A5702

A Multidisciplinary Team Approach May Help Bridge Patients to Bariatric Surgery

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Background: Bariatric surgery candidates can be extremely complex, including having multiple medical comorbidities, mobility status issues and psychosocial situations. We enlisted the help of our medical colleagues in a multidisciplinary setting, in order discuss these complex patients in an effort to bridge more of them to bariatric surgery. Prior to having this forum available to manage patients, they typically were discharged from the program or their surgery was extremely delayed because of the difficulty in managing their medical problems. **Methods:** At our academic institution, under the Center for Weight Management and Wellness, we invited a select group of surgeons, family practice physicians, endocrinologists, nurse practitioners, dieticians, program coordinators and patient navigators to an organized monthly meeting to discuss a subset of complex bariatric patients.The patients were identified by the Bariatric surgeons office as requiring a more thorough preoperative work-up than the typical patient. The patients were categorized into one of five groups: 1) more aggressive Diabetic Management 2) needing to meet a Goal Weight prior to surgery 3) Medical Weight Management prior to surgery 4) Under Weight (BMI 30-35 that did not qualify for surgery) or 5) Post-Operative Weight Gain (patients with failed weight loss following bariatric surgery.)This multidisciplinary meeting provided a forum to refer patients and discuss treatment options as well as management decisions with regard to assisted weight loss, change in medications or improvement in mobility, medical problems or psychosocial issues. **Results:** A prospectively maintained database was analyzed from August 2012 to June 2013 containing the complex patients discussed in the multidisciplinary setting. A total of 95 patients were presented at the meeting in this 10 month time frame. Sixty-four patients were given a Goal Weight by the surgeon before surgery would be performed. Sixteen patients were referred for Medical Weight management to assist with medication management, lifestyle changes and eating habits prior to surgery. Three patients were referred for being underweight and unable to qualify for surgery. Six were referred for more aggressive diabetes control. Six were referred for post-operative weight-gain following previous bariatric surgery.Of the above 95 patients, 21 were referred directly to Endocrinology while 64 were referred to the Family Practice Bariatric program.Of the 92 patients that would be eligible for surgery, 15 (16.3%) of them have successfully been bridged to surgery to date. Eight underwent laparoscopic Roux-en-Y gastric bypass, 5 laparoscopic sleeve gastrectomy and 2 had revisional surgeries. **Conclusions:** Bariatric patients are becoming increasingly complex. By creating a multidisciplinary monthly meeting at our institution, we have created a setting in which the patients can be followed from the medical, nutritional and surgical perspectives. Due to the creation of this referral process and forum, we have been able to offer more patients surgery, that would likely have not occurred or would have been extremely delayed. We will plan to continue the analysis of this database and hope to increase the success of bringing patients safely to the operating room for bariatric surgery in an expedited fashion.

A5703

The effect and the limit of laparoscopic sleeve gastrectomy for Japanese diabetes patients as metabolic surgery

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Background: Laparoscopic sleeve gastrectomy (LSG) showed a marked rise for several years all over the world. In Japan where gastric cancer is popular, LSG is the most common procedure (70%) , because screening of stomach is possible and LSG is relatively easier than bypass procedures (e.g. LRYGB, LSG with DJB). On the other hand, bypass procedures have been known to be more effective for T2DM as metabolic surgery. It is very important to know the effect and the limit of LSG for T2DM. **Methods:** As metabolic surgery, we recommend bypass procedures for severe diabetes, and LSG for mild diabetes and cases with high surgical risk (e.g. super morbid obesity), considering patient's preference. We performed 179 LSG for Japanese morbid obesity patients from October 2005 to March 2013. Of the179 patients, 50 patients (27.9%) were diagnosed as T2DM before the operation. Of the 50 patients, 48 patients (96%) can be followed at least 1 year after the operation. Body weight, BMI, HbA1c, duration and treatment of T2DM were examined. The diabetes surgery score (modified ABCD score) was also examined and analysed for each case. **Results:** The data before the operation as follows; M/F 28/20, mean age 46.6±11.0 (20-65) years old, mean weight 123.0±31.2 kg, mean BMI 43.9±9.5 kg/m2, mean HbA1c 7.38±1.40%, mean duration of T2DM 3.1±5.3 year, treatment of T2DM; diet controlled 20, OA 26, insulin + OA 2, mean modified ABCD score 6.9±1.8 (3-10). The data at 1 post operative year as follows; mean weight 85.6±28.6 kg, mean BMI 30.7±9.3 kg/m2, mean %EWL 79.5±36.4%, mean HbA1c 5.63±0.71%, treatment of T2DM; no treatment 44, OA 2, insulin + OA 2. 44 patients (91.7%) achieved remission (HbA1c<6.5 without medicine), and only 4 patients (8.3%) did not achieve remission. For all patients who achieved remission, no diabetes recurrence were not seen after that (followed 1-6 year). 47 patients (97.9%) can be controlled HbA1c under 7% with or without medicine.As for the 'no remission' group, all patients are older than 50 (mean 59.0) years old, the durations of T2DM are more than 5 (mean 16.0) years. Both of 2 patients who had treated with insulin and the other who failed weight loss (%EWL 9.5%) did not achieve remission. Analysis with modified ABCD score revealed that all of 3 patients whose score were 3 did not achieve remission. **Conclusions:** LSG is very effective for Japanese patients with relatively mild diabetes. But LSG may not be effective; old people (>50), the durations of T2DM are more than 5 years, treated with insulin, weight loss failure, modified ABCD score is lower than 3. We should consider bypass procedures for patients above.

A5704

The Effect of Bariatric Surgery on Diabetic Nephropathy in Asian Patients

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Background: Bariatric surgery has been shown to improve control of type 2 diabetes mellitus (T2DM), including inducing remission of the disease. However, there is a paucity of outcome data on diabetes-related complications such as nephropathy after bariatric surgery. The aim of our study is to explore the beneficial effect of bariatric surgery on renal function in obese diabetic patients at 12 months post-operative. **Methods:** Patients with T2DM who underwent bariatric surgery between 2008 to 2013 at a tertiary centre in Singapore and had at least 12 months of prospective follow-up were included in this analysis. Renal function, consisting of serum creatinine and urine albumin excretion rate were compared pre-operatively and 12 months post-surgery. Secondary outcomes including changes in weight, glycemic control (using Haemoglobin A1c, HbA1c) and blood pressure (BP) were analysed.
Results: A total of 70 patients (Age 43+/- 9 years; 56% females) with morbid obesity (Weight 114+/-26 kg) and diabetes (HbA1c 8.37+/-1.38%) underwent bariatric surgery (49% Roux-En-Y gastric bypass, 31% laparoscopic gastric bypass; 20% laparoscopic sleeve gastrectomy). 74.3% (52/70) had quantification of albuminuria preoperatively and on follow up. Preoperatively, 40.3% (21/52) had normoalbuminuria, 42.3% (22/52) microalbuminuria; 17.3% (9/52) macroalbuminuria. 55.6% (5/9) of the patients with macroalbuminuria had regression to microalbuminuria and 68.2% (15/22) of the patients with microalbuminuria had regression to microalbuminuria. 60.3% (35/58) had improvement in serum creatinine on follow up. The mean creatinine at baseline and 1 year post- operative was 80.45 +/- 39.9 umol/L and

74.47+/-43.48umol/L ($p<0.05$) respectively. The improvements in serum creatinine and urine albuminuria were independent of changes in BP and changes in BP medications. Moreover, HbA1c decreased from 8.37+/-1.38% to 5.75+/-0.8% ($p<0.05$) and weight reduced from 114+/-26 kg to 56 +/-19.56 kg ($p<0.05$). The systolic BP pre and 1 year post-operative was 126.97+/-15.05 mmHg and 126.04+/-18.09 mmHg respectively.
Conclusions: Bariatric surgery can induce a significant improvement in glycaemic control and improve or halt the development of diabetic nephropathy independent of changes in BP.

A5705
Revisional Bariatric Surgery Can Improve Refractory Metabolic Disease
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Background: Bariatric surgery results in remarkable improvement of metabolic diseases like type 2 diabetes mellitus, dyslipidemia and metabolic syndrome (MetS). In fact, it has been shown that patients with inadequate weight loss after bariatric surgery can still achieve metabolic improvement. However, it is unclear if patients undergoing revisional surgery for inadequate weight loss or recidivism can still achieve improvement of refractory metabolic disease. The aim of this study was to evaluate metabolic outcomes after reoperative bariatric surgery for inadequate weight loss.
Methods: We retrospectively reviewed all revisional bariatric surgery cases performed for inadequate weight loss or recidivism at our center between 2006 and 2013. We identified and analyzed all revisional cases in which the patient had ongoing uncontrolled diabetes or metabolic syndrome based on the Adult Treatment Panel III (ATP3) criteria from the third report of the National Cholesterol Education Program. Patient demographics, perioperative parameters, metabolic profiles and follow-up data were extracted and analyzed. Effectiveness of weight loss therapy was measured by calculating percent excess weight loss (%EWL) based on an ideal BMI of 25 kg/m2.
Results: In total, 121 reoperative bariatric cases for inadequate weight loss or recidivism were identified during the study period. Of those, 31.4% (n=38) had a MetS diagnosis and 33.9% (n=41) were diabetic at the time of their primary bariatric procedure. At the time of revisional surgery, 15 of 38 (39.5%) patients still met the ATP3 criteria for MetS and 7 of 41 (17.1%) patients had a hemoglobin A1c (HbA1c) ≥ 6.0 mg/dl. Of those with refractory MetS (n=15) at time of revisional surgery (see Table for case summary), a mean percent excess weight loss (%EWL) of 59.4±21.2% at a mean 40.1±29.9 months of follow-up after reoperative surgery corresponded to a mean decrease in triglyceride of 65.2 mg/dl, mean increase in HDL of 12.1 mg/dl and mean decrease in plasma glucose of 58.8 mg/dl. Only 1 patient (6.7%) still met ATP3 criteria for MetS. Of those with HbA1c ≥ 6.0 mg/dl at time of reoperative surgery (n=7), a mean %EWL of 63.0±22.9% at a mean 51.6±36.6 months of follow-up after revisional surgery corresponded to a mean decrease in HbA1c of 1.6 mg/dl. Three patients still had a HbA1c ≥ 6.0 mg/dl, but only one had a level over 6.5 mg/dl.
Conclusions: While further research is needed, this initial report suggests that revisional bariatric surgery is capable of treating both inadequate weight loss and refractory metabolic diseases like diabetes mellitus, dyslipidemias and metabolic syndrome.

A5706
Diabetes Post-Bariatric Surgery Evolution: Gastric Sleeve or Bypass. Our Experience 1 Year after Surgery.
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Elpidio Gonzalez y Tuyuti[1]

Background: Gastric Sleeve as well as Gastric Bypass cause Type 2 Diabetes remision 1 year after surgery.
Methods: Retrospective observational study that included 39 morbidly obese patients submitted to gastric sleeve (GS) or gastric bypass (GBP). It was analyzed for each patient: insulinemy, glycemy, HOMA index, glycated hemoglobin (HbA1c), oral hypoglycemiant medication, insulin requirements, diabetes

duration and weight: basal (pre OP), after 6 months and 1 year after surgery (post OP). For T2DM condition it was considered the category of improvement, partial remision or complete remision 1 year after surgery. **Results:** 18 patients (46.2%) had GBP and 21 (53.8%) GS. Average age was 47.8 ± 8.9 and 76.9% (30 cases) were women. Pre-operative BMI was 44.90. Average time since DM diagnostic to surgery was 4.82 ± 4,85 years. There was no difference between the two types of surgery GS 5.1 ± 4.1 years vs GBP 4.4 ± 5 years; p= NS.As regards basal treatment, 7 patients received insulin, 3 patients were submitted to GS and 4 patients to GBP. Basal glycemy was 135.9 mg/dl ±41.9 with a significant decrease 1 year after surgery 91 ± 14.8 (p= 0.001). Basal HbA1 was 6.8 ± 1.8 decreased to 5.7± 0.6 1 year after surgery. Only one patient from the seven who required insulin (17.9%) continued with insulin treatment 1 year after surgery.Six months after surgery,19 diabetic patients (48.7%) presented remision of the disease, whereas 6 more patients (15.4%) were considered to improve their condition. 1 year after surgery 29 patients (74.4%) achieved remision and 5 of the remaining cases (12.8%), improved. 88.8% of the patients submitted to Gastric Bypass presented remision 1 year after surgery, vs 61.9% for Gastric Sleeve; p = 0.054.EBMIL was 68.42 ± 49.05 after 6 months and 76.55 ± 47.06 1 year after surgery. **Conclusions:** One year after surgery it was observed a major percentage of diabetes remision in morbidly obese patients submitted to bariatric surgery. It was observed a tendency of major proportion of diabetes remision in patients submitted to gastric bypass.

A5707

Metabolic Surgery at Grade I Obesity at the Clínica Integral de Cirugía para la Obesidad y Enfermedades Metabólicas (CLIO) in Mexico City.

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Background: Metabolic Surgery is performed in Obesity Class I patients with type 2 diabetes (T2D) or other comorbidities associated with obesity. In these patients adequate metabolic control is not achieved despite medical management. Since metabolic abnormalities are not solved, the main goal of metabolic surgery is to treat T2D and reduce cardiometabolic risk factors. The Roux-en-Y Gastric Bypass (RYGB) has demonstrated a sustained T2D remission rate of 72% at 2 years and 62% at 6 years associated to the percent excess weight loss. The aim of the study is to analyze the effectiveness of excess weight loss, remission of T2D, dyslipidemia and risk reduction for coronary artery disease after metabolic surgery. **Methods:** A retrospective study was performed in Grade 1 (BMI 30-34.9) obese patients with associated comorbidities (T2D, dyslipidemia) that underwent either RYGB or Sleeve Gastrectomy (SG) from August 2010 to December 2013 at CLIO in Mexico City. Patients had at least 1 year follow up. The percent excess weight loss (%EWL), fasting plasma glucose, HbA1c and lipid profile were analyzed preoperatively and every 3 months. Remission of T2DM was determined with at least one year HbA1c <6% and fasting plasma glucose <100mg/dL(5.6mmol). A high coronary artery disease risk was determined when HDL <50mg/dL in women and <40 in men. Adequate lipid control was considered when plasma cholesterol and triglycerides concentrations were found below 200mg/dL and 150mg/dL, respectively.
Results: Metabolic surgery was performed in 17 patients, where 14 were female (82.3%), with a mean age of 41+10 years (19-58). RYGB was performed in 14(82.3%) and SG in 3(17.6%) patients. Eleven patients (64.7%) had T2D and 7 (41.1%) had dyslipidemia. Mean %EWL at one year was 91.6+35 (67.6-120%) for RYGB and 78.4+4.2% (66.9-89) for SG group. After surgery, mean fasting glucose and HbA1c were 97.7+31.9mg/dL (78-133) and 4.7+1.2 (3.5-7.4). At one year, T2D remission was observed in 8/11(72.7%) patients. From the above, 7/10(70%) remissions were achieved after RYGB and 1/1 after SG. From the 7 patients with dyslipidemia, 5 (71.4%) had adequate lipid control, one (14.3%) continued with hypercholesterolemia (14.3%) and one (14.3%) with mixed dyslipidemia after surgery. Four individuals (23.5%) had decreased risk for coronary artery disease.

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Conclusions: Metabolic surgery at one year follow-up is effective for losing excess weight (all patients had >50 % EWL) where RYBP showed higher metabolic improvements compared with SG. Remission of T2D and control of dyslipidemia was achieved in over 70% of the population; however, less than a quarter of patients showed a decreased risk for coronary artery disease. More studies with higher sample size are needed in the longer term to confirm our results.

A5708

Diabetes Remission after Bariatric Surgery among Mexicans: A Comparison between Laparoscopic Gastric Bypass and Sleeve Gastrectomy

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Background: The American-hispanic population's risk for diabetes is almost twice higher than the non-hispanic whites.Despite the genetic similarity, obesity prevalence in Mexicans and Mexican-Americans has been reported different Diabetes remission after bariatric surgery continues to be a matter of debate.There is a lack of studies for this matter in the Mexican (non-American) population. We analyzed diabetes remission after surgery (LGBP and LSG)in this group
Methods: In this retrospective study we compared the records of 84 consecutive diabetic patients submitted to either LGBP (n=62), or LSG (n=22) from 2009 to 2011 at a single institution in Mexico; data collection was done prospectively. Only patients with complete 18 months postoperative follow-up were included in the study. All patients were Mexicans with a preoperative BMI ≥35 kg/m² and confirmed Type 2 DM. Patients with previous bariatric procedures, Intragastric Balloon or revisional surgery were not included.The primary objective was to analyze diabetes remission between groups after 12 months of surgery. Baseline demographics, comorbidities, and metabolic profile (FPG and HbA1c%) were obtained and compared at 0, 3, 6, 12 and 18 months after surgery. Type of treatment was compared at baseline and 12 months. Secondarily, weight loss (BMI and %EWL) was also described between groups at 0, 3, 6, 12 and 18 months.Complete diabetes remission was defined according to the latest American Diabetes Association (ADA) statement (2009).
Results: Sixty-one patients (72.6%) were female; 48 in the LGBP group vs. 13 in the LSG groups (p=0.003). The LSG group had significantly greater weight and BMI (131.8 ± 25.2 kg. and 48.6 ± 8 kg/m²) when compared with the LGBP group (112.1 ± 18.6 kg. and 42.9 ± 6.5 kg/m²).The metabolic profile and treatment were comparable between groups. Seven patients (8.3%) required insulin (all in the LGBP group), 2 patients (one in each group) were treated only with diet, and the rest (n=75) were taking at least one anti-diabetic medication. After surgery, a FPG <100 mg/dl and Hb1Ac% < 6, was observed in most cases within the first 3 months (indistinctively of type of surgery). After one year, overall FPG dropped from 157.7 ± 60.7 mg/dl to 91.8 ± 8 mg/dl (p<0.001) and Hb1Ac from 7.4 ± 1.9% to 5.2 ± 0.6% (p<0.001). The analysis between groups showed comparable mean FPG and Hb1Ac% during the complete follow-up, without significant difference at any time period. At 12 months, only 3 patients (all in the LGBP group) still required medical treatment Overall remission was observed in 62 (76.1%) patients (42 in the LGBP group vs 22 in the LSG group; p=0.169). Complete remission was achieved in 55 patients (65.4%) without significant differences between LGBP and LSG (36 vs. 19 respectively; p=0.522), and partial remission in 9 (10.7%).In terms of weight loss, mean %EWL was significantly greater for the LGBP group at 6, 12 and 18 months.
Conclusions: LGBP and LSG are equally effective for mid-term diabetes remission among Mexicans submitted to bariatric surgery. Longer follow-up and remission factors analysis are required to determinate the ultimate role of each procedure.

A5709

Reversal of Pre Proliferative Diabetic Retinopathy Following Duodenal Switch Surgery (DS)

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Background: Introduction: Screening programs for cotton wool or white spots are an important aspect of diabetic care. Cotton wool spots are localized accumulations of axoplasmic debris

within adjacent bundles of unmyelinated ganglion cell axons. They are caused by retinal nerve fiber layer microinfarcts. The finding of these lesions means the patient is in the pre proliferative phase of diabetic retinopathy. Their detection may represent the last opportunity for aggressive diabetes treatment to prevent progression to the proliferative phase and vision loss.
Methods: Case description: A 53 year-old female with BMI 39, long-term diabetes mellitus maintained on oral and injectable therapy, hypertension and hyperlipidemia presented for evaluation for bariatric surgery. The patient had a 20 year history of diabetes mellitus. Insulin therapy started 12 year ago, and pre operatively was on a standing dose of 125 units of long acting daily supplemented with additional coverage and oral agents. Three months prior to surgery white spots were detected by optometrist and confirmed by an ophthalmologist.
Results: DS (42 french bougie for VSG, 175 cm alimentary limb, 125 cm common channel) was performed in November 2012,. HgbA1c =10.1. Nine months postoperatively she was reevaluated by ophthalmology with evidence of reversing retinopathy, and at one year had complete resolution of the cotton wool spots. Her current hgbA1c level is 4.8, BMI 23 without medication.
Conclusions: Discussion: With 20 year history of DM and 12 years of injectable therapy, improvement without surgery was not likely. Choice of procedure may also be important. This patient is in sub group that is least likely to have remission with rygb, vsg or lagb. Additionally, following rygb, declining vision secondary to worsening retinopathy has been reported. This may have occurred because patients were at a more advanced stage (proliferative) or difference with the DS procedure. We hope to confirm these findings with additional patients and investigate whether there is benefit for DS in patients with proliferative retinopathy. Finally, our case suggests that surgery (DS) should be considered for refractive diabetes in patients with pre proliferative retinopathy.

A5710
Liraglutide Augmentation of Type 2 Diabetes Resolution (T2DMr) after Laparoscopic Adjustable Gastric Banding (LAGB)
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Background: LAGB surgery can achieve T2DMr in ~50% of cases, especially with diabetes of shorter duration. Procedures such as gastric bypass (RYGB), and biliopancreatic diversion (BPD) yield higher rates of T2DMr, possibly because of incretin enterohormone stimulation. Postprandial GLP-1 increases after RYGB and BPD, but not after LAGB. Incretin pharmacotherapy to enhance T2DMr after LAGB is avoided because of concern for vomiting and band slippage. We previously described a long-standing diabetic who did not experience T2DMr with LAGB until after administration of exenitide. In this report, we examine the T2DMr effect of liraglutide in diabetic LAGB patients.
Methods: After IRB approval, the charts of 36 LAGB diabetic patients who started post-operative liraglutide for persistent diabetes between 2010 and 2013 were retrospectively reviewed. Adverse effects were noted. Patients whose diabetes resolved after liraglutide were selected for intensive analysis. Age, gender, initial weight, post-LAGB weight, post-LAGB hemoglobin A1C (hbA1C), post-liraglutide weight and post-liraglutide hbA1C were recorded in these cases. The data was analyzed using a paired, two-tailed t-test.
Results: There were no reports of band slippage among LAGB patients recieving liraglutide. 11 patients (30.5%) with long standing diabetes (13.87±4.08 years) experienced T2DMr after liraglutide. These patients ranged in age from 50 to 70, with a mean age of 61.1 years. Seven of the patients (63.6%) were female, 4 were male. The pre-LAGB weight was 239.25±36.06.The post-LAGB weight was 195.8±31.5 ($p<.001$). The post-LAGB hbA1C in this group was 7.5± 1.36 prior to liraglutide administration. Weight decreased to 188.5±27.41 ($p=.06$) after liraglutide and hbA1c decreased to 6.18±.61 ($p=.001$).
Conclusions: Liraglutide was well tolerated in LAGB patients with no reports of band slippage. A modest, non-significant improvement in weight loss was seen after liraglutide administration. Nearly a third of persistently diabetic LAGB patients experienced T2DMr after liraglutide with a significant decrease in hbA1c. Further study is needed to better define the role for incretin pharmacotherapy in persistently diabetic patients after LAGB and other gastric restrictive procedures.

*** Presentation under consideration for the John Halverson Young Investigator Award**

A5711

Roux en Y Gastric Bypass versus Sleeve Gastrectomy with jejunal Bypass for the treatment of Type 2 Diabetes Mellitus in patientes with BMI of 30 kg/m2 or more. Results at 1 year of follow-up

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Background: Laparoscopic Sleeve Gastrectomy with Jejunal Bypass (SGJB) has been performed since 2004 in our institution and, together with Laparoscopic Roux-en-Y Gastric Bypass (RYGB), has shown good results in terms of Type 2 Diabetes Mellitus (T2DM) remission. The objective is to present the results of both techniques on diabetic obese patients at one year of follow-up.
Methods: A prospective cohort of obese patients (>30 kg/m2) and T2DM was begun on November 2011, being non-randomly assigned to either SGJB or RYGB. We collected all data from programmed visits at 1, 3, 6 and 12 months. Remission of T2DM was defined as glicemic control and glycated hemoglobin (HbA1c) <6,0% with no medications. Mean of all variables are reported.
Results: A total of 37 patients met the inclusion criteria, 21 in the SGJB group (1) and 16 in the RYGB group (2). Mean preoperative BMI was 37,1 kg/m2 (30-49,6). There were no significant differences between the two groups (Table 1). The % of patients in the Group 1 who achieved T2DM remission at 1 – 3 – 6 and 12 months was 47,6%, 65%, 62,5%, 58,3% respectively. The % of patients in the Group 2 who achieved T2DM remission at 1 – 3 – 6 and 12 months was 18,8%, 53,3%, 50%, 62,5% respectively. Only 2 patients, in the RYGB group, presented HbA1c >6,5%. One patient presented self-limited gastrointestinal bleeding, and there was no mortality
Conclusions: In this prospective cohort, there were similar results between both groups, with a tendency of faster glicemic control in the SGJB group. More patients and more follow-up are needed to properly compare this two surgical techniques.

A5712

Insulin Dose Changes in Patients Preparing for Weight Loss Surgery

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Background: Weight Loss Surgery (WLS) is an effective treatment for obesity and type 2 diabetes mellitus. While it has been proven that moderately tight perioperative glycemic control in patients with diabetes mellitus results in superior operative outcomes, no investigation has been undertaken into specific insulin dosage changes to achieve glycemic control during the pre-operative low-energy diet prior to WLS. This study seeks to determine the dose adjustment of insulin necessary in patients undergoing a pre-operative low energy diet prior to WLS.
Methods: A retrospective chart review was performed on 40 individuals with type 2 diabetes mellitus who had undergone a pre-operative low-energy diet at Via Christi Weight Management between 2005 and 2012. Primary measurements were basic demographics, co-morbidities, history of physician supervised weight loss program participation, serial weights, serial body mass indices, baseline hemoglobin A1C, insulin doses, oral glucose control medications and self-reported blood glucose levels.
Results: Baseline Hemoglobin A1c level was 8.3 (SD 1.9)%. Participants at baseline used an average of 1.07 units/kg/day of total insulin. Week 1 mean fasting blood glucose level was 138 mg/dl (SD 45.2). The mean 2 hour post prandial blood glucose level at week 1 was 165.6mg/dl (SD 46.1), with a daily insulin dose of 0.66 units/kg/day (P<0.0001). Mean blood glucose level on morning of surgery (week 2) was 158.1 (SD 47.3). One or more episodes of symptomatic hypoglycemia was reported in 22.5% (9/40) of subjects.
Conclusions: In patients with diabetes mellitus undergoing a pre-WLS low-energy diet, an insulin dose adjustment to a total daily insulin dose of 0.6 units/kg/day appears safe and effective.

A5800

*** Presentation under consideration for the John Halverson Young Investigator Award**

Effect of movie violence on mood, stress, appetite perception and food preferences in a random population

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Background: TV/movie watching has been associated with increased risk for obesity. Weight gain is promoted due to both the sedentary behavior aspect of watching TV/movies and the increase in energy intake while doing the activity. A distinctive feature of several recent TV series/movies is violence. Violence exposure has been shown to affect the psychological state and to impact acutely the body at a somatic level. Although extensive work has been done on the effect of media violence on attitudes, behaviors, and cardio-vascular health, very little is known about media violence and its effect on appetite, eating behavior and food preferences. The present study aimed at investigating the immediate acute effect of violence in movies, on mood, stress, appetite perception and food preferences. **Methods:** Protocol: 447 subjects (F= 202; M= 239) completed a validated visual analogue scales questionnaire (VAS) to record their subjective feelings of hunger, satiety, and desire to eat immediately at their way out of a movie. Movies were divided into 3 categories: a) horror n=96 b) romance or comedy n=188 and c) drama/action n=163. The sample population was randomly chosen. Body weight and height and the time of last meal were also recorded. **Results:** Average age was 21.7 y (±5.0) and average BMI was 23.4 Kg/m2 (±3.9). There was a significant difference between the 3 movie categories for stress, anxiety and the sleepy feeling and a preference to eat something Sweet (p=0.019; Romance>Action>Horror). The Hunger feeling was highly correlated with a high preference to eat something sweet, fatty, salty or savory (p=0.000 for all), but did not correlate with any of the tensed, stressed or anxious feelings. The Sleepy feeling correlated with a preference for Sweet (p=0.014) and Fatty foods (p=0.000).
Conclusions: This pioneer study elucidates the acute effect of violence and its consequent stress on food intake and preferences, is a step forward going beyond the classical energy balance theory of obesity. It allowed us to have a first vision on the impact of receiving violence passively on our stress level and therefore on our eating behavior and food preferences. The study is very basic in its design, and stems its strength in that it is integrated in real life situation. Horror/violence movie types impacted the subject by making him feel more stressed and anxious; however romance made him feel sleepier and less tensed. Movie types didn't seem to affect directly hunger or appetite but rather triggered some food preferences, such as a preference for sweet after a romance movie, which was the opposite for a horror movie. The complexity of the mechanisms by which media violence can affect our body and mind and probably our appetite along with our results confirm the need of a more complex, randomized and controlled investigation in which eating during and after the movie will be measured along with different outcomes related to stress and food preferences. This help us understand and highlight the mechanisms behind this effect, thus allowing us to understand better the associated obesity and weight gained with TV/movie watching.

A5801

Profile and prevalence of serum vitamin B12 deficiency among severely obese patients in the pre-operative stage of bariatric surgery

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Gastrocirurgia[1] Gastrocirurgia de Brasilia[2]

Background: The number of bariatric surgeries has been rising in recent years and it is known that this type of surgery increases the risk of nutritional deficiencies. For this reason, concern has grown about how to provide ideal care for the bariatric patient in order to prevent the development of such deficiencies. However, many of these deficiencies have their origin in the pre-operative stage, with the surgery itself becoming a mere aggravating factor. A lack of vitamin B12 is one of the most common and important postoperative deficiencies since it can bring hematological and neurological complications. The objective of this study was to evaluate the profile and prevalence of vitamin B12 deficiency (pg/mL) in clinically severe obese patients (BMI ≥ 35 kg/m2, with co-morbidities or BMI > 40 kg/m2 , with or without co-morbidities) in the pre-operative stage of bariatric surgery. **Methods:** This is a cross-sectional analysis of

data from medical records belonging to a private bariatric surgery service. The records were analyzed and then the data related to the concentration of serum vitamin B12 (pg /mL), antropometric and body composition data (using multifrequency bioelectrical impedance analysis) were collected. In this way, the concentration of vitamin B12 and prevalence of micronutrient deficiency for this population was calculated. **Results:** Medical records of 88 patients were analyzed. Of these, 16 (18%) were male and the others (72 and 82 %) were female. The mean age was 36.4 ± 10.15 years, mean BMI 40.32 ± 6.41 kg/m2 and body fat percentage was 49.41% ± 4:33%. The mean serum concentration of vitamin B12 in the study population was 374.60 ± 113.00 pg / mL. Sixty-eight percent of the patients had vitamin B12 levels between 180-400 pg / mL and 32% had levels above 400 pg / mL. No patient had more than 900 pg/mL or less than 180 pg/mL. **Conclusions:** No patient among this population had severe deficiency or hypervitaminosis of vitamin B12. However, considering that for a bariatric patient the ideal is to keep these levels above 400 pg/mL, it was observed that most of the study population were entering the postoperative period with inadequate levels. More studies are needed to ascertain as to whether such preoperative inadequacies have any influence on postoperative prognosis and whether there is any need for early corrective treatment in the pre-operative stage.

A5802

Number of post-op nutrition visits is associated with decrease in BMI after gastric bypass surgery

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Background: Registered dietitians/nutritionists (RDN) are important members of the bariatric surgery team. The roles of the RDN are to perform dietary assessments, to evaluate for nutritional deficiencies, and to provide counseling to help patients meet post-surgery weight loss goals. However, there are currently no definitive evidence-based guidelines about RDN visit frequency. Post-surgery nutritional follow-up attendance can decrease as time passes and a number of patients will not comply with regular follow-up unless they are prompted to do so. We examined the relationship between the number of nutrition visits attended and change in BMI in the 2 years after gastric bypass surgery.
Methods: Patients who underwent Roux-en-Y gastric bypass surgery at our institution from June 2004 to July 2010 were included in this analysis. Records were reviewed to determine date of surgery, age, sex, race, BMI, and number of nutrition visits within 2 years after surgery. Change in BMI was calculated by subtracting pre-surgery BMI from BMI at 2 years post-surgery. Spearman's correlation was used to determine the association between the number of nutrition visits attended post-op and BMI change. Then, multivariate linear regression was used to control for the effects of sex, race and age. A p-value of <0.05 was considered significant.
Results: Of 79 patients included in the analysis (65 men, 14 women), mean age was 51 years. Seventy % were White, 19% were Black and 11% were Latino. Patients attended an average of 6.4 nutrition visits during the 2 years post-surgery. The average BMI change was a decrease of 14.7 kg/m2. There was a significant relationship between the number of post-surgery nutrition visits and the change in BMI 2 years after the surgery ($p=0.017$), such that those who attended more post-surgery nutrition visits were those who experienced greater declines in BMI. The association persisted ($\beta=0.26$, $p=0.039$, 95% CI= 0.015-0.58), after adjustment for age, sex, and race.
Conclusions: Patients who attended more nutrition visits after gastric bypass surgery experienced greater decreases in BMI. Contact with RDNs may be a source of motivation for patients. Furthermore, continued support through communication and monitoring is needed to sustain weight loss. While not addressed in this analysis, the RDN can also contribute to the monitoring for and prevention of dumping syndrome, protein-calorie malnutrition and micronutrient deficiencies. Ultimately, strategies need to be developed to determine the optimal number and specific schedule of nutrition visits and to encourage attendance at all scheduled nutrition appointments.

A5803

The Prevalence of Anemia and the relation between Ferritin and Percentage of Excess Weight Loss among RYGB patients

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Background: Bariatric surgery is the most effective treatment for morbid obesity. However, it is a procedure that can cause the patient to develop nutritional deficiencies, such as anemia, especially in the restrictive and malabsorptive procedures, such as Roux-en-Y Gastric Bypass (RYGB). Some obese patients already presented anemia in the preoperative period. Our objective was to evaluate the biochemical parameters of the complete blood count (CBC) and ferritin in the pre and postoperative stages (6 months, 1 year and 2 years) among patients who underwent RYGB and correlate them with the excess weight loss (%EWL).
Methods: This is a cross-sectional analysis of medical records belonging to a private service. The records of patients who presented biochemical exams during their appointments were analyzed, separating the registers into four periods: 1) preoperative and postoperative, 2) 6 months ± 2 months, 3) 1 year ± 4 months and 4) 2 years ± 4 months. These data included: biochemical tests (CBC, ferritin, transferritin, folic acid and vitamin B12), anthropometric data and supplemental iron intake (oral or intravenous). The diagnosis of anemia was established observing WHO criteria. The means of specific variables were compared between periods using the F-test in one way analysis of variance (ANOVA). For cases where the F-test was significant, comparisons between the means for the periods,taken in twos, were made with the Tukey test for multiple comparisons.For variables expressed as a mean ± standard deviation presenting Gaussian distribution, a comparison was made between those taking supplementation with those who did not,using the Student t-test or the Mann-Whitney test where there was no Gaussian distribution. For variables expressed in frequency, a comparison was made between those taking supplementation with those who did not, using the chi-square test or Fisher's exact test.
Results: Medical records of 52 patients were analyzed. Of these, some patients had appointments in more than one period. Thus, data for 89 appointments were generated. The only biochemical parameters showing significant difference were: hemoglobin values at 1 and 2 years PO and hematocrit levels at 1 year PO being lower than in the preoperative period. All patients were taking polivitamins and poliminerals supplementation. Oral iron supplementation was based on 60mg of elementar iron. The prevalence of anemia was not significantly altered between periods, not even when compared among patients taking or not taking iron supplementation in each period. Only one patient received intravenous iron supplements due to symptoms of severe anemia. Of those patients taking supplements, 91.3 % were women of childbearing age who continue to have menstrual cycles. Higher values of %EWL were presented among patients with lower hemoglobin levels after 2 years PO ($r = -0.63$, $p = 0.0082$), but the same is not true about ferritin levels.Analyses were performed using SAS 9.3.
Conclusions: Levels of hemoglobin and hematocrit were lower at 1 and 2 years PO and at 1 year PO respectively than in the pre-operative. Iron supplementation was not associated with anemia. Greater %EWL may be associated with anemia in postoperative period.

A5804

Prevalence of nutritional complications and adherence to supplementation in pregnant women undergoing the Roux-en-Y Gastric Bypass

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Background: The total of bariatric surgeries has been rising in recent years, including as a large portion, women of reproductive age. Pregnancy after bariatric surgery has thus become common and this population deserves special attention to avoid maternal and fetal malnutrition. This study aimed to evaluate biochemical and anthropometric parameters, prevalence of complications and adherence to supplementation during the trimesters of pregnancy after undergoing Roux-en-Y Gastric Bypass.
Methods: This was a cross-sectional analysis of data from medical records collected by a private center for bariatric surgery. Patient records were analyzed, and then separated by trimesters (first, second and third), according to gestational age, corresponding to the appointment date on which the data were collected. These data referred to biochemical tests, prevalence of

complications, anthropometric data and the intake of vitamin supplements. The means of the respective variables were compared by trimester using the F-test in one way analysis of variance (ANOVA). For cases where the F-test was significant ($p<0.05$), the means were compared in pairs of trimesters, using the Tukey test for multiple comparisons. To compare the prevalence of symptoms or intake of supplements during the trimesters, Pearson's exact chi-square test was used. To verify the correlation between variables, Pearson's linear correlation coefficient was employed, considering $p < 0.05$ as significant. Analyses were performed using of SAS 9.3. **Results:** Medical records of 26 patients were analyzed. Of these, 11 had appointments in more than one trimester, generating data for 49 appointments. In this way, data from 26 appointments in the first trimester, 9 for the second trimester and 14 in the third trimester were obtained. Regarding biochemical parameters, it was observed that the values of erythrocytes, hemoglobin, hematocrit and blood glucose were significantly higher in the first trimester compared to the third. For hemoglobin, higher values were observed in the second trimester compared to the third. Prevalence of reactive hypoglycemia, ingestion of specific multivitamins for pregnancy and occurrence of intramuscular vitamin B12 were observed at significantly higher levels in the third trimester compared to the first and second. The occurrence of intravenous iron was significantly higher in the second trimester compared to the first and third. The intake of complex B vitamins was significantly higher in the second and third trimesters compared to the first. Folic acid intake was significantly higher in the first trimester compared to the second and third. A negative correlation between weight gain during pregnancy and percentage of excess weight loss relative to the minimum post -operative weight before pregnancy ($r = -0.70$, $p < 0.01$) was observed, indicating that the greater the loss of postoperative maternal weight before pregnancy, the lower her weight gain. **Conclusions:** The lower levels of hemoglobin and hematocrit in the third trimester may point to a possible increased risk of anemia at this stage of pregnancy. Lower blood glucose levels in the last trimester coincided with the higher prevalence of reactive hypoglycemia in the third trimester. Moreover, a greater loss of excess weight before pregnancy may be associated with a lower weight gain during pregnancy.

A5805

The Prevalence of Nutritional Deficiencies after Laparoscopic Sleeve Gastrectomy for Morbid Obesity- 6 Year Retrospective Study

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Background: Currently, sleeve gastrectomy (SG) has been commonly performed as a sole procedure for bariatric purposes with a large publication on short term outcomes. However, there is still a lack of long term data. We aim to elaborate these nutritional deficiencies and relate them to BMI changes in the short and long term follow up. **Methods:** From January 2005-August 2008, all consecutive patients who underwent SG were documented in this retrospective, single-center study. The main endpoints were macro/micro nutritional deficiencies before and after surgery. Secondary end points were changes in BMI and percentage of excess weight loss (%EWL). **Results:** Of the 234 patients identified 74 patients were excluded (71 for loss of follow up, and 3 because of conversion to gastric bypass). Of the 160 patients included, 70% were female with a mean age of 47.42 years (range: 12-73) and a mean preoperative BMI of 42.85 kg/² (range 34.6-75.38). Preoperatively, 40.6% of the patients had at least one micronutrient deficiency. Postoperatively, preliminary vitamin D deficiencies improved; iron slightly increased but stayed within normal limits; vitamin B12 deficiency increased compared to pre-op, however, concomitantly, results showed hyper-vitaminosis in some patients ($p<0.05$). The patients had a serial %EWL of 31.4%, 51.6%, 60.9%, 63.8%, 57.1%, 56.1%, 52.3%, 50.6% and 45.1% after 0, 3, 6,12, 24, 36, 48, 60, and 72 months, respectively. **Conclusions:** Our preliminary results concur with most of the current research. However there are some key differences, especially with the hyper-vitaminosis: explanation may be linked

to this facility's aggressive supplement regimen. Further data should confirm our preliminary findings.

A5806

Transgenerational effects of maternal diet-induced obesity in the offspring of mice: study of liver

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Background: Obesity is recognized as a health problem that threatens the current population. The Fetal nutrition has influences on the development of chronic diseases in adults. The literature reports that the programming of chronic diseases by nutritional changes in the mother can overtake the first generation and achieve subsequent generations, known as transgenerational transmission. The goal is to evaluate the effects of maternal obesity upon liver structure in early adult life, focusing on the F1, F2 an F3 generations after F0 maternal pre-gestational, gestation and lactation high-fat diet (HF).
Methods: C57BL/6 female mice (F0) were fed standard chow (SC) or a HF diet for 8 weeks prior to mating and during the gestation and lactation to provide the F1 generation (F1-SC and F1-HF). At 3 months of age, F1 females were mated to produce the F2 generation (F2-SC and F2-HF) and at 3 months of age, F2 females were mated to produce the F3 generation (F3-SC and F3-HF). The male offspring from all groups were evaluated at 3 months of age. One-way ANOVA and the post-hoc Holm-Sidak test and t-test were used ($P<0.05$).
Results: The body mass of the HF-F0 mothers during the 8 weeks pre gestational was significantly greater than that the mothers SC-F0 ($P = 0.02$). Likewise, the oral glucose tolerance test (OGTT) conducted before mating demonstrated that mothers HF-F0 presented glucose intolerant when compared with SC-F0 mothers ($P< 0.0001$). The offspring data: The HF-F1 group had significantly higher body mass at birth (0 day), at 21 days and at 90 days, compared of the SC-F1 group ($P=0.0012$).The oral glucose tolerance test performed at 90 days showed that the HF-F1 group has become more glucose intolerant when compared to SC-F1 ($P=0.006$) group. In addition, both the total cholesterol and the plasma triglyceride were higher in group HF-F1-F1 in the SC ($P= 0.001$). Regarding the F2, the body mass of HF-F2 group was significantly higher at birth (0 day) and at 21 days ($P=0.01$), but at 90 days there was no difference in body mass when compared to SC-F2 group ($P=0.19$). Regarding the OGTT, in the second generation was not observed at 90 days significant difference between the groups ($P=0.96$).
Conclusions: The partial results showed that the maternal programming program the offspring of the first generation (F1) to changes in carbohydrate metabolism and increased body mass, however, in the second generation (F2)the mice showed no differences in body mass and metabolism of carbohydrates at 3 months old.P.S: Due to a long study, in this time the F2 females are under mating to generate the F3.

A5807

Body Composition before and One Year after Laparoscopic Gastric Bypass

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Background: Bariatric surgery is the most effective option for the management of morbid obesity. It results in a substantial weight loss and resolution of comorbidities. Body composition may vary considerable among morbidly obese patients but the fat mass(FM) is usually high in these population. Weight loss in patients undergoing bariatric surgery should be primarily from FM, minimizing the fat-free mass(FM) loss.
Methods: We retrospectively analyzed 20 morbidly obese patients who completed the protocol of bioelectrical impedance analysis(BIA) before and one year after a laparoscopic Roux-en-Y gastric bypass. Weight, body mass index(BMI), FM, FFM, FM percentage and FFM/FM relation were measured before and one year after surgery. Changes in body composition were particularly analyzed.
Results: There were 16 women and 4 men. The BMI before surgery and 1 year after surgery was 41,58 +/- 4,15 Kg/m2 and 28,16 +/- 2,96 Kg/m2.

The percentage of excess body weight loss at the 1-year period was 76,08%. The percentage of FM before surgery was 49,62 +/- 4,7, and 1 year later it was 33,25 +/- 6,75. The percentage of FFM was 50,37 +/- 4,71 before surgery and 66,82 +/- 6,86 at 1 year. The FFM/FM relation was 1,04 +/- 0,24 before surgery and 2,17 +/- 0,76 at 1 year.
Conclusions: Postoperatively, weight loss mainly occurs as a consequence of reduction in the FM with less impact in the FFM. The FFM/FM relation is more than double 1 year after surgery.

A5900
Oxidation of substrates and resting metabolic rate of patients with obesity III grade candidates bariatric surgery and normal.
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Background: The resting metabolic rate (RMR) is characterized as the main component of energy expenditure in sedentary individuals representing 60 % to 80 % of total energy expenditure. Studies indicate that there may be a correlation between RMR and substrate oxidation. In this context, becomes very important to evaluate the energy requirements at rest of obese individuals to can increase daily energy expenditure. Therefore, the aim of this study was correlate the oxidation of substrates with RMR of patients candidates for bariatric surgery and normal
Methods: The sample consisted of candidates for bariatric surgery and normal patients, all women. This is a cross-sectional study were collected: weight (kg), height (m), BMI (kg/m²). To measure the RMR, glucose oxidation and lipid the indirect calorimetry was used, oxygen consumption and carbon dioxide produced during 30 minutes. The equations to calculate the energy demand according to Weir: RMR (kcal/day) = (3.941xVO2) + (1.106xVCO2) x 1440, glucose oxidation (g/min)= 4.55VCO2– 3.21VO2 - 2.6N2, lipid oxidation (g/min)= 1.67VO2 - 1.67VCO2 - 1.92N2. The data were normally distributed, Student t test and Pearson correlation coefficient was used, SPSS software 17.0, $p<0.05$.
Results: Comparisons between 12 obese patients (31.9±8.2 years) and 9 normal (35.0±16.6 years) were performed. There were differences in all study variables, BMI (44.0±6.3 kg/m2 and 21.6±1.8kg/m2, $p<0.001$), glucose oxidation (-40.9±83.1 g/day and 121.1±56.4g/day, $p<0.001$) and lipid oxidation (237.1±48.0 g/day and 88.7±32.6 g/day, $p<0.001$), respiratory quotient (0 68±0.04 g/day and 0.80±0.05g/day, $p<0.001$) and RMR (2122.1±263.3 kcal/day and 1307.9±152.7 kcal/day, $p<0.001$). Correlations of RMR with the variables of the study showed a positive association with lipid oxidation in both groups, obese ($r=0.757$, $p<0.004$) and normal ($r=0.797$, $p<0.010$). However, there was no correlation with the oxidation of glucose. There was a negative correlation between the respiratory quotient and RMR ($r= -0.707$, $p<0.033$) in normal.
Conclusions: There are differences between the groups in the oxidation of energy substrates, while the obese individuals had higher lipid oxidation, respiratory quotient and RMR, and a significant positive correlation between RMR and lipid oxidation. Grant#2013/06563-7, São Paulo Research Foundation (FAPESP).

A5901
Relation between post prandial glucose excursion and the length of the common limb and after Roux Y gastric bypass in the minipig
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Background: Roux-en-Y Gastric bypass (RYGB) is an effective surgical procedure for achieving significant long-term weight-loss and improve glucose metabolism. It involves restrictive and malabsorptive mechanisms that are not completely elucidated. The ideal length of the gastric bypass limbs and the impact of the malabsorptive component are still debated. The aim of this study was to explore the influence of

the length of the common limb on glucose uptake, insulin, and GLP-1 secretion in the minipig.
Methods: RYGB was performed under general anesthesia by laparotomy on 11 female Göttingen minipigs (30 kg, > 2 years). All the protocole has been approved by the local ethical committee [approval code: CEEA 152012]. Either a long common limb RYGB (Long-CL, jejuno-ileostomy at 150 cm from the Treiz ligament, n=6) or a short common limb RYGB (Short-CL, jejunoileostomy at 150 cm from the ileo-coecal junction, n=5) were performed. A tunneled central venous catheter was placed into the external jugular vein for repeated conscious blood sampling. Metabolic parameters were assessed in the two groups 10 days after surgery during a standardized mixed meal containing D-xylose, a non metabolized sugar which systemic appearance correlates with glucose absorption. Blood glucose, D-xylose, insulin and GLP-1 secretions were monitored during 3 hours. Results of both groups were compared with two way ANOVA for repeated measures with Bonferroni post-hoc test, or Mann Whitney test.
Results: As illustrated in Figure 1, post prandial glucose excursion during meal test at 10 days was reduced in the Short-CL in comparison with the long-CL ($p < 0.001$, two way ANOVA) Furthermore, area under the curve (AUC) of glucose was significantly decreased after a Short-CL ($p=0.010$, Mann Whitney test). Similarly, postprandial insulin and GLP-1 excursions were also lower than in the Long-CL group (AUC Insulin : $p < 0.001$ and AUC GLP-1 : $p = 0.024$, respectively). Importantly, D-xylose excursion after the mixed meal test was also significantly lower in the Short-CL group ($p < 0.001$, Two-Way ANOVA) and AUC D-Xylose was lower ($p=0.001$). At one month, weight loss was significantly higher following Short-CL than Long-CL (WL (%), reaching respectively 22.3 ± 5.7 % vs 12.7 ± 11.3 %, $p = 0.03$).
Conclusions: This study demonstrates in a clinically relevant large mammal model, that the length of the common limb is critical for glucose metabolism following a mixed meal after RYGB. Taken together our results also suggest that the reduction of sugar intestinal absorption is a major determinant of post prandial glucose excursion after RYGB.

A5902

Mechanisms of weight loss after laparoscopic Nissan fundoplication: Is it gastric manipulation or short gastric division?

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Background: With obesity reaching epidemic proportions worldwide, there is a need for safe and minimally invasive novel treatments. To this aim, we have been studying non-bariatric procedures which have been reported to lead to weight loss with the goal of identifying critical steps that can be replicated and lead to less invasive weight loss interventions. Initial reports had shown that Laparoscopic Nissen Fundoplication (LNF) can lead to durable weight loss, but whether the critical surgical step for this outcome is mechanical manipulation of the gastric fundus or ligation of short gastric vessels, is unknown. To better understand the mechanism, we compared the weight loss effect of LNF and Laparoscopic Splenectomy (LSP), where only short gastric vessels are ligated.
Methods: We performed a retrospective analysis of patients that underwent LNF or LSP between 2003-2013. Exclusion criteria included co-existing malignancy, prior or subsequent bariatric surgery, and post-LNF dysphagia requiring dilation. Weight data at baseline and up to 2 yrs following surgery were collected, and compared to baseline weight. Percentage Body Weight Loss (%BWL) was calculated and compared using t-test.
Results: We identified 109 LNF and 37 LSP cases that met inclusion criteria. %BWL at 2 years was 5.7±1.1% for LNF (mean 9.2±1.8 lbs weight loss) ($p<0.01$ compared to baseline), but not significant at 0.5±2.2% in LSP group (mean 2.6±4.8 lbs weight loss).
Conclusions: LNF but not LSP results in long term weight loss, suggesting weight loss after LNF is related to manipulation of the gastric fundus and not ligation of the short gastrics. Targeting the function of the gastric fundus with minimally invasive approaches may be a promising avenue for obesity therapy.

A5903

The Relationship of Psychological Health and Self-compassion with Emotional Well-Being in a Sample of Obese Individuals Seeking Bariatric Treatment

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Background: Obesity is recognized as a disease by the World Health Organization (WHO) and is defined by the amount of body mass index (BMI) a person has on their body. Fat accumulation is dependent on a complex interaction of multiple biological, environment, and psychological factors and there are no other universal characteristics that apply to obese individuals (Karasu, 2012). Obesity stigmatization runs through many domains and effects multiple aspects of obese individuals' lives, including quality of life. The inevitable reality of painful and traumatic life events lends to the construct of self-compassion as an effective conceptual lens in which to understand psychological processes. By holding our self and others compassionately, we soften the harshness of judgment and isolation inherent in being human. Neff (2003) describes self-compassion as having six dimensional components: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. A self-compassionate individual tends to accept with more willingness the aspects of themself that are undesirable, while person with lower self-compassion tends to evaluate themself based on whether things go badly or well (Leary, Tate, Adams, Allen and Hancock, 2007). Psychological health is reflected in the way individuals navigate different aspects of their lives. The cognitive, behavioral, and interpersonal characteristics of psychological health influences interpersonal interactions as well as daily functioning. Psychological health may impact how individuals manage interactions with health care provides and follow up care (Millon, Antoni, Millon, Minor, & Grossman, 2006). Psychological health can be categorized as clinical or nonclinical depending on the situation and severity of disturbance and could interfere medical and other health related activities. A large body of research exists that focuses on obesity, self-compassion, and psychological descriptors as separate areas of study. However, research has not yet focused on the relationships between these constructs. The purpose of this study is to explore the link between emotional well-being and psychological descriptors and to assess whether self-compassion will help explain this relationship in obese patients seeking bariatric surgery. **Methods:** Archival data from psychological assessment for pre-bariatric surgery clients will be used for this study. The total of 100 participants completed the Millon Behavior Medical Diagnostic (MBMD), Self-Compassion Scale (SCS) Beck Depression Inventory-2 (BDI-2), Beck Anxiety Inventory (BAI), and demographic information. These inventories were part of requirements for pre-bariatric psychological screening. **Results:** A series of multiple regression analyses will be conducted to explore the linear relationship of psychological health and self-compassion with depression and anxiety. In addition, analyses will be conducted to determine whether or not self-compassion mediates the relationship between psychological health and emotional well-being (i.e, depression and anxiety separately). **Conclusions:** It is hypothesized that psychological health and self-compassion will be linearly related to emotional well-being and that self-compassion will mediate the relationship between psychological health and emotional well-being. This study will contribute to the understanding of psychological health of an individual seeking treatment for obesity, including the roles psychological health and self-compassion play in their emotional well-being in terms of depression and anxiety.

A5904

Comparison of the Optic Nerve Sheath Diameter between Obese and Non-Obese patients during Laparoscopic Procedures

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Background: Measurements of the optic nerve sheath diameter (ONSD) with noninvasive ocular ultrasonography have been shown to be accurate in determining increased ICP. ONSD greater that 5mm correlates with intracranial hypertension (>20mmHg). Obesity is associated with chronic increases in intra-abdominal pressure that could consequently produce

intracranial hypertension. By utilizing ONSD ultrasonographic measurements, we compare the difference between obese and non-obese patients. We intend to demonstrate that morbidly obese patients have chronic intracranial hypertension.
Methods: We prospectively collected data from patients who underwent laparoscopic procedures in the supine position between July 2013 and March 2014. Ophthalmic pathology was not present in any patient. Ultrasonographic measurement of the optic nerve sheath diameter was obtained sagittally with a 12 Mhz transducer 3-mm from its origin. The measurements were obtained at 0, 15, 30 minutes and at the end of surgery. Statistical analysis: We performed the Welch two sample t-tests to compare the mean ONSD for two independent groups (obese and non obese), for each point in time.
Results: There were 62 subjects, 28 females (45.2%), and 34 males (54.8%), with a mean age of 44.22±10.44 years (range 23-66). Forty seven percent of patients were non-obese, 52% of patient were obese. The mean body mass index was 30.70±7.61 kg/m2 (Range: 20.0-59.5). The mean ONSD of non-obese and obese patients was 4.7 and 5.4 mm at baseline (p=0.004), 5.3 and 6.2 mm at 15 min (p=0.004), 5.8 and 6.6 mm at 30 min (p=0.005), 5.1 and 5.7 mm after deflation of pneumoperitoneum (p=0.03), respectively. At each point in time, the mean ONSD for non-obese and obese patients was shifted upwards or downwards by the same degree.
Conclusions: Utilizing a non-invasive method to measure the optic nerve sheath diameter we are able to demonstrate a chronic increase in intracranial pressure in obese patients. The increase in the optic nerve sheath diameter during laparoscopic procedures reflects a temporary increase of the intracranial pressure from baseline.

A5905
Gender influence on long-term weight loss and comorbidities after Laparoscopic Sleeve Gastrectorny and Roux-en-Y Gastric Bypass: a prospective study with a minimum follow-up of 3 years
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Background: Gender might be a significant factor to predict outcome after bariatric surgery. The aim of this study was to investigate gender influence on long-term LSG and LRYGB results.
Methods: A cohort of 414 consecutive patients underwent surgery between 2001 and 2011. 227 patients (138 women, 89 men) underwent LSG, 187 (135 women, 52 men) LRYGB. Mean follow up was 96,3 ± 9,7 months (range, from 38 to 116 months). Weight loss was defined as percent excess body mass index loss (%EBMIL) and comorbidities outcome as reduction or discontinuation of therapy.
Results: In LSG, mean age was 40.6 ± 4.8 years, mean preoperative BMI was 46,4 ± 5 kg/m2, 22,8% with comorbidities. In LRYGB, mean age was 44,2 ± 4,5 years, mean preoperative BMI was 45,8 ± 4,2 kg/m2, 35,6% with comorbidities. The overall mean ± standard deviation of %EBMIL after 5 years was 78,6±22 in LSG group and 83,7±21,4 in LRYGB group. In LSG, the difference between males and females in terms of %EBMIL after 24-36 and 60 months of follow up was significant (P=0.003). 98% of patients improved comorbidities with no significant difference between genders. In LRYGB, the difference between males and females in terms of %EBMIL after 24-36 and 60 months of follow up was not significant (P=0.06). 99% of patients improved cornorbidities with no significant differences between genders
Conclusions: LSG is more effective in obese male patients in terms of %EBMIL, with no difference for comorbidities. LRYGB patients show similar results in terms of %EBMIL and cornorbidities in both genders.

A5906
Does Bariatric Surgery Cause Collateral Weight Loss for Pets?
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Background: While two-thirds of Americans are overweight or obese, nearly 50% of the pet population of dogs and cats are also overweight and obese. Similarly to human obesity, dog obesity can lead to joint problems, insulin resistance, and can shorten the life span of the animal. A previous study demonstrated that bariatric surgery rendered an additional benefit of weight loss and improved healthy behavior for bariatric patients' family members. Our study

aims to determine if this halo effect phenomenon extends to bariatric patients' pets.
Methods: 25 bariatric patients and their dogs were included in this prospective study. Both human IRB and animal APLAC approval were obtained for this study. Dog weight was obtained in clinic by trained research personnel at patient preoperative, and 6- and 12-month postoperative visit. Patients also completed the Stanford 7-day Physical Activity Recall Scale (PAR) at each weighing session. Patient demographic data was obtained, as well preoperative and 6- and 12-month postoperative BMI, waist circumference, and percent excess weight loss (%EWL). Student T-test and correlation analysis were used as appropriate. All analysis was performed using GraphPad Prism 6.
Results: 6-month follow up was 88.9%. Patients had an average age of 46.8 years, 80.0% were female, and 52.0% were white. Patients had an average preoperative BMI of 44.7 kg/m2 and waist circumference of 128.3 cm. At 6-months, dogs in the study experienced an average percent weight loss of 7.3%. At 6-months postoperative, patients had increased moderate physical activity (≥3 METS) by an average of 7.7 hours per week compared to preoperative physical activity (p=0.029). Dogs whose owners had a greater than average increase in 6-month moderate physical activity trended towards significantly higher 6-month percent weight loss (high activity 8.36 vs. low activity-1.84%, p=0.120).
Conclusions: Increased physical activity and improved health habits from bariatric patient owners may result in dog weight loss. Bariatric patients with dogs should be encouraged to utilize their pet as a means to increase their physical activity level. Increased moderate physical activity has potential weight loss benefits for both bariatric patient and pet alike.

A5907

Relationship between Post-Operative Marijuana Use, Food Addiction, and Disordered Eating among Young Adult Bariatric Surgery Patients

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Background: The comorbidity of eating disorders and substance abuse has been extensively documented in young adults in the general population but has not been well explored in sub-groups, such as those who have undergone weight loss surgery. There is limited information on marijuana use after WLS and if use may be related to disordered eating patterns to potentially compensate for a decrease in food intake. The objective of this study was to explore the association between marijuana use patterns and disordered eating (e.g. food addiction) among young adult patients 1-2 years after WLS.
Methods: Participants who were < 20 years old when they underwent WLS were recruited from a patient database. Licensed mental health clinicians administered patients a structured assessment that included the Addiction Severity Index (ASI), Yale Food Addiction Scale (YFAS), and Disordered Eating Questionnaire (DEQ) (adapted from the Stunkard-Messick Eating Questionnaire [1985] and the Night Eating Questionnaire [2008]). Marijuana use was defined based on ASI as current use (within 30 days), recent use (within year), and increased use (increased use since surgery). Data were analyzed using Fisher's Exact Tests, and Logistic Regression methods adjusting for age, gender, race/ethnicity, and time since surgery.
Results: The majority of the sample (N=50, mean age 27.2, SD=7.7) were female (74%) and underwent the Roux-en-Y Gastric Bypass procedure (65.1%). Average time since surgery was 1.2 years (SD=3.2). A total of 16% of the sample reported current marijuana use (CMU), 22% reported recent marijuana use (RMU), and 37.5% of those with reported marijuana use pre-WLS reported increased use (IMU) post-WLS. A loss of controlled food intake was significantly associated with IMU (p=0.02) and had a trend toward significance among RMU (p=0.05). CMU and IMU were more likely to skip important activities to obtain food compared to non-users (p<0.05; p=0.02, respectively). IMU were more likely to spend large amounts of time to obtain food (p=0.05). Half (50.0%) of those who reported IMU said they eat to relax when anxious compared to 11.4% of non-users (p=0.04). A third (33.3%) of IMU have cravings or urges to eat snacks when awoken at night compared to 4.5% of non-users (p=0.01). Almost half (45.5%) of RMU eat when feeling lonely compared to 12.8% non-users (p=0.02). After adjustments for confounders, RMU had a 9-fold

higher odds of reporting three or more disordered eating habits compared to non-users (AOR:8.8, p=0.04). **Conclusions:** Young adult WLS patients may be at increased risk for increased marijuana use following surgery, particularly those patients who used marijuana before surgery. Data suggests patients who report marijuana use may also be at increased risk for more disordered eating habits compared to non-users after surgery. These patients should be closely monitored for several years post-WLS.

A5908

Effect of Pre-Operative Education in Spanish for Spanish-Speaking Patients Seeking Bariatric Surgery

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Background: Bariatric centers frequently provide preoperative educational programs to inform patients about the risks/benefits of weight loss surgery and improve understanding of the post-operative changes necessary for long-term success. However, most US educational programs are conducted in English, which may create a barrier to effective treatment and access to care for non-English speaking populations. To address this concern, we devised a Spanish language preoperative education program consisting of preoperative information and group nutrition classes conducted entirely in Spanish, supported with Spanish-language materials. We aimed to examine the effect of this intervention on our Spanish speaking patients.

Methods: Three cohorts of patients seeking bariatric surgery between January 1, 2011 and March 31, 2012 were identified: 1) patients whose primary language was English attending English-language programs ("English-English"); 2) patients whose primary language was Spanish attending Spanish-language programs ("Spanish-Spanish"); and 3) patients whose primary language was Spanish attending English-speaking programs with the assistance of a Spanish-to-English translator ("Spanish-English"). Data collected included demographic information; per cent of patients ultimately undergoing surgery; time elapsed from date of information session attendance to date of surgery; and type of medical insurance.

Results: There were 575 patients in the English-English group, 74 patients in the Spanish-Spanish group and 28 patients in the Spanish-English cohort. 26% of the English-English cohort ultimately underwent surgery compared to only 12% of the Spanish-Spanish cohort (p=0.010 vs. English-English). The percent of Spanish-Spanish patients undergoing surgery was not appreciably different from the 14% of the Spanish-English cohort undergoing surgery (p=ns vs. Spanish-Spanish). Controlling for age, gender, ethnicity, and insurance status, ethnicity was the only statistically significant predictor of whether a patient underwent surgery (p=0.004). Participants choosing to have surgery in the Spanish-English group took an average of 185 days longer to have surgery compared to their English-English group counterparts (p<0.001) when controlling for other demographic variables. Provision of Spanish language sessions was associated with a dramatic decrease in time to surgery for the Spanish-Spanish cohort which only took 35 days longer to have surgery compared to the English-English cohort but was still statistically significant (p<0.001, Spanish-Spanish vs. English-English). Further examination of what demographic factors influenced time to surgery in the multivariate analyses indicated that female patients, regardless of primary language spoken, took 35 days longer to have surgery than their male counterparts (p<0.001). **Conclusions:** Spanish-speaking patients are less likely to undergo surgery compared to their English speaking counterparts, even when pre-operative information is provided in Spanish. This difference cannot be explained by the insurance status of the patients. In contrast, providing information in Spanish is associated with improved time to surgery for those Spanish speaking patients who choose to undergo surgery. However, a significant delay in surgery still remains for Spanish-speaking patients receiving information in Spanish compared to patients whose primary language is English. Further research is needed to further clarify what factors affect non-English speaking patient access and decision-making regarding bariatric surgery.

A5909

The Impact of Obstructive Sleep Apnea (OSA) and Intermittent Hypoxia on Non-alcoholic Fatty Liver Disease (NAFLD) in Extreme Obesity

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Background: Background: Extreme Obesity is associated with a chronic inflammatory state, increased macrophage proliferation in adipose tissue, metabolic dysfunction, obstructive sleep apnea and non-alcoholic fatty liver disease. In addition to the established predictors for NAFLD such as metabolic syndrome, diabetes and insulin resistance, recurrent hypoxia associated with OSA may also contribute to the pathogenesis of NAFLD. We studied the relationship between OSA, hypoxia and NAFLD in a large cohort of bariatric surgery candidates whose clinical evaluation suggested the presence of OSA.
Methods: Methods: A large bariatric surgery database (N=3079 patients with liver histology) was retrospectively queried to identify patients with a completed sleep study performed within 1 year prior to bariatric surgery. The sleep study results were used to identify patients with moderate/severe sleep apnea (defined as apnea hypopnea index>15) and/or significant oxygen desaturation (lowest oxygen saturation <0.80). NAFLD was present if steatosis >5% or NASH (presence of steatohepatisis, fibrosis, or cirrhosis) was present on liver histology. The association between the sleep results and liver pathology was evaluated using multiple logistic regression adjusting for diabetes status, waist circumference, and age.
Results: Results: The 347 patients identified had a mean age of 46.5 (range=18-75), 78% were female (n=270) and the mean BMI was 50.3 kg/m2 (range=35-91). Both moderate/severe sleep apnea and oxygen desaturation were present in 42% (n=147 for each). Liver pathology indicated that 81% (n=282) had fatty liver and 39% (n=134) had NASH. Moderate/severe sleep apnea was associated with NASH (OR=1.61, 95% CI=1.01-3.27, p=0.044) but not with fatty liver disease (OR=1.13, 95% CI=0.61-1.96, p=0.765). Oxygen desaturation was not associated with fatty liver disease (p=0.671) or NASH (p=0.768).
Conclusions: Conclusion: In extreme obesity, moderate/severe OSA is independently associated with more severe variants of NAFLD. Using conventional sleep study parameters of oxygen saturation, an association between hypoxia and NAFLD was not observed.

A5910
Evaluation of Marital Status Changes for Patients After Bariatric Surgery: Results from Voluntary Follow-up Survey

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Background: The purpose of this study was to evaluate how bariatric surgeries (gastric banding, gastric bypass, and sleeve gastrectomy) impact relationship stability by assessing the separation rates between married patients and patients in deeply committed relationships.
Methods: Patients completed a 4-page survey asking about relationship status before and after surgery, as well as patients' and patients' partner's satisfaction before and after bariatric surgery. Surveys were completed at their follow up appointment in the Bariatric Surgery Clinic in 2012.
Results: 87 patients completed the survey. Mean age was 44 years old (range: 24 to 69) with mean preoperative BMI of 46.69 (SD=8.96). Patients were predominantly female (84%) and Caucasian (66%), followed by Hispanic (29%) and African-American (8%). The procedure type included laparoscopic gastric banding (37%), laparoscopic sleeve gastrectomy (22%), and laparoscopic Roux-en-Y gastric bypass (40%). Approximately 50% were married at the time of their surgery. 3% were living as married. 16% were living in a committed relationship. 31% were not married nor living in a committed relationship. Postoperatively, 80% had no change in their relationship, 2% changed from living non-married to living married, 5.7% were no longer living as married, 8% became divorced and 1% became engaged. There was a significant difference between pre and postoperative patient satisfaction with their marriage (p = 0.0011) and with their appearance (p< 0.0001). Patients' partners also had significantly improved satisfaction with their marriage (p = 0.0082). There was also significantly improved satisfaction in frequency of fights/arguments (p = 0.0445). In subgroup

analysis, significance remained in gastric bypass patients in satisfaction with their marriage/relationship (p = 0.0159). Improvement in appearance remained significant among banding, sleeve, and bypass patients (p= 0.0021, p<0.0001, and p <0.0001). **Conclusions:** Bariatric surgery may contribute to improved patient satisfaction with patients' marriage/relationship status, as well as their satisfaction in their appearance. It may also contribute to patients' partners' satisfaction in marriage/relationship status. These results further demonstrate a social and psychological benefit of bariatric surgery in obese patients, in addition to the previously known health benefits.

A6000

Psychosocial Factors among Revisional Bariatric Surgery Patients: Sub-Optimal Weight Loss versus Recidivism

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Background: Bariatric surgery is consistently associated with marked long-term weight loss as well as significant improvements in obesity-related medical comorbidities in the severely obese. However, a substantial subset of patients experience sub-optimal weight loss or significant weight regain which may result in the need for revisional procedures. The current study examines psychosocial history and psychological testing of candidates presenting for revisional surgery because of inadequate or non-sustained weight loss. Further, we sought to explore whether psychosocial factors or psychological testing may distinguish between groups with sub-optimal weight loss versus those with satisfactory loss but significant weight regain.
Methods: Patients who received revisional bariatric surgery for inadequate weight loss or recidivism were examined. Those with anatomical abnormalities or complications that would have contributed to undesirable weight loss were excluded, as were those who had planned/staged procedures. 57 participants (80.8% female; 73% Caucasian; Mean BMI=48.73 kg/m2; Mean Age=49.32 years) whose revisional surgery was completed for weight-related concerns were included and further dichotomized into sub-optimal weight loss (SOWL: n=23) versus weight regainers (WR: n=34). A series of Chi-Square and t-tests examined demographics, psychosocial factors measured during the semi-structured psychiatric evaluation and scales on the Minnesota Multiphasic Personality Inventory-2-Restructured Form (n=26; MMPI-2-RF).
Results: Across groups, revisional candidates had a more significant psychiatric history compared to published reports of the population (e.g., past alcohol use disorders=21.1% vs. 12.9%; past substance use disorders=20% vs. 13.7%; psychotropic medication use=76.2% vs. 56.3%; inpatient psychiatric treatment=14.3% vs. 11.3%). SOWL were significantly younger (44.0 vs. 52.9; t=2.82; p<.01) and on more psychotropic medications (2.0 vs. 0.7; t=3.35; p<.01). Groups did not differ on BMI, gender, ethnicity or history of outpatient psychiatric treatment. MMPI-2-RF scale scores were similar to published norms although revision patients were somewhat more defensive than the larger sample and also scored substantially lower on negative emotional experiences and internalizing features. Although not clinically elevated, WR endorsed greater ideas of persecution (50.9 vs. 44.3; t=1.95; p<.03), interpersonal passivity (46.8 vs. 41.6; t=1.96; p<.02) and behavioral restricting fears (47.5 vs. 42.7; t=2.83; p<.02) than SOWL.
Conclusions: Results suggest that patients seeking a revision of previous bariatric surgery may have more complicated psychiatric histories than bariatric populations as a whole. Some factors such as psychotropic medication use could impact expected weight loss due to obeseogenic side effects. Further, a lack of insight into difficulties handling negative emotions may distinguish revision patients. Multi-disciplinary assessment and intervention may help mitigate factors which relate to sub-optimal long-term outcomes. Future research should examine the impact of both physical and psychological factors on sub-optimal weight loss and weight regain.

A6001

Safety and Efficacy of Single Stage Conversion of Failed Adjustable Gastric Band to Roux-en-Y Gastric Bypass: A Case Control Study

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Background: Laparoscopic adjustable gastric bands (LAGB) fail and are removed due to inadequate weight loss, weight regain, and a variety of band related complications. One option for remediation of a failed LAGB includes single-stage conversion to Roux-en-Y gastric bypass (RYGB). However, general consensus regarding the safety and efficacy of single versus two-stage conversion from band to RYGB is lacking; and there are little data which compare conversion procedures to primary RYGB. We conducted the following study to shed light on these areas.
Methods: A single-institution, prospectively maintained bariatric database was used to retrospectively identify consecutive patients who underwent single-stage removal of LAGB with concomitant conversion to RYGB between the years of 2007-2013. The study cohort was matched 1:1 for age, gender, BMI, and approximate date of operation to patients who underwent primary RYGB without prior LAGB. Primary endpoints were operative time, complication rate, length of hospital stay (LOS), and % excess BMI reduction at 24 month follow-up.
Results: Ninety-four conversion patients met the inclusion criteria with an average age of 42 years and BMI of 43.1 kg/m2, with 86% being female. The average time interval between LAGB and conversion to RYGB was 46 months. The most common indication for conversion was inadequate weight loss in 74% of patients with 66% of patients having concomitant band intolerance. There were no differences in patient characteristics between the conversion and primary RYGB cohorts and no deaths occurred in either cohort. There were no statistically significant differences in the average LOS (3.1 vs. 3.0 days, p=0.97), or the overall complication rate (10.6 % vs. 5.3 %, p=0.28) in the conversion compared to the primary RYGB cohort, respectively at 30 days post-operatively. Furthermore, there was no differences between the groups when complications were subcategorized as major (6.4% vs. 2.1%, p=0.28) or minor (4.3% vs. 3.2%, p=1.0). However, the average operative time was significantly longer in the conversion patients compared to primary RYGB (198 vs. 137 min; p <0.001). At 24-month follow-up, the average percent excess BMI reduction from the time of conversion was 72.5% in the conversion cohort versus 75.5% among the primary RYGB cohort (p = 0.73).
Conclusions: Single-stage conversion of LAGB to RYGB is safe with an acceptable complication rate and similar LOS compared to primary RYGB. This approach to remediation of failed LAGB results in excellent weight loss and may avoid the additional hospitalization, expense, patient inconvenience and potential risk exposure that a two stage conversion of LAGB to RYGB entails.

A6002

Major revisional "non-banded" bariatric surgery is associated with low mortality but significant morbidity.

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Background: Revisional bariatric surgery (RBS) is becoming more prevalent as the experience with weight loss surgery has evolved. Some previously accepted procedures are now deemed suboptimal and a substantial number of patients present for RBS. Almost 35% of all bariatric patients in France from 2005 to 2011, and 6% of the patients included in the NIH Longitudinal Assessment of Bariatric Surgery study, underwent RBS procedures. Studies on the perioperative safety of these procedures report on mixed patient populations with adjustable band conversions, and are limited by small sample size. The aim of our study was to assess the perioperative safety profile of non-banded major RBS.
Methods: The ACS-NSQIP database from 2005 to 2011 was queried using insurer-approved Current Procedural Terminology codes for RBS and diagnoses for morbid obesity. Adjustable band-related procedures (revisions and conversions) were excluded. Data on patient demographics, baseline comorbidities, procedural events, and postoperative occurrences were analyzed. 30-day mortality and morbidity were assessed. Median (interquartile range), frequencies and odds ratios (OR) with 95% confidence interval (CI) are reported unless otherwise indicated.

*** Presentation under consideration for the John Halverson Young Investigator Award**

Results: We identified 416 patients who underwent major RBS. Median age was 50 (41-57) and 84.9% were female. The majority had an American Society of Anesthesiology score of 3 or 4 (67.8%), and 83 (20%) patients had diabetes. Median BMI was 44.1 (39.5-51.5) with 118 (28.4%) patients being super-obese. Total operating time was 205 (141-278) mins and length of hospital stay was 4 (3-6) days. 30-day mortality, serious and overall morbidity were 1%, 13% and 22.1%, respectively. The rates of pulmonary embolism, organ space infections and reoperation were 0.7%, 5.3% and 6.5%, respectively. Prolonged operating time was the only independent factor associated with postoperative morbidity (over 278 min, OR 3.21 92% CI 1.64 - 6.28, p=0.001). **Conclusions:** Major non-adjustable band RBS is performed with low mortality but considerable overall and serious morbidity. Traditional risk factors, like gender and superobesity, were not predictive of postoperative occurrences. Prolonged operative time is associated with morbidity.

A6003

Revision Of Sleeve Gastrectomy To Roux-en-Y GastricBypass - Our Results

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Background: Laparoscopic sleeve gastrectomy(LSG)is increasingly being favoured as a stand alone bariatric procedure international.The effect of LSG on reduction of excess weight and co-morbidities is based on both a restrictive mechanism and on hormonal changes but a revision rate has been reported from 5.8–11%. Indications of revision bariatric surgery(RBS) in LSG are insufficient weight loss,gastroesophageal reflux disease(GERD),development of dysphagia due to stenosis of the gastric sleeve,and failure in the resolution of comorbidities. **Methods:** We present our retrospective analysis of 16 patients who underwent RBS from LSG to Roux-en-Y GastricBypass(RYGB)over a period of 2 years.Indications were insufficient weight loss(n=14), and severe GERD(n=2).Complete mobilisation of the gastric tube was done with careful attention to the adhesions with Liver. A micropouch of 30ml was created with the initial firing of linear stapler from the greater curvature towards the lesser curvature in contrast to the conventional RYGB.Gastrojejunostomy was created with a linear stapler.The alimentary limb was constructed using 150cms of jejunum and the biliopancreatic limb was kept at 75cm.Jejunojejunostomy was created with a linear stapler and an abdominal drain was kept in all cases. **Results:** The decision for conversion of LSG to RYGB in all the cases was based on the surgeons' experience with RYGB.Our demographic data had nine females and seven male patients , with a mean age of 43(36–49)years. The mean preoperative BMI was 41 kg/m2 (36-44kg/m2).Revision was performed after a mean period of 28 months. The revision resulted in mean %EWL of 18%(14%- 26%) at 3 months and 58%(52%-66%) at 12 months and the mean BMI decreased to 36kg/m2(31-39 kg/m2) at 3 months and 30 kg/m2 (27-34kg/m2) at one year. Resolution of GERD in both patients was achieved within 3 months. Mean operative time was 135 minutes with a mean hospital stay of 3 days . No major morbidity or mortality was associated with the procedures. **Conclusions:** RBS is associated with higher risk of perioperative complications compared with the primary procedures, although it appears to be safe and effective when performed in experienced centers.The results from this study conclude that the revision of a LSG to RYGB is safe and effective in short term for patients who do not achieve sufficient weight loss and develop complications like GERD .Larger series and long term follow up is necessary for the recommendation of RYGB as revision procedure for a failed LSG.

A6004

Mortality and morbidity of revisional bariatric surgery.

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Background: As the demand for bariatric surgery has grown over the last decade, an increasing number of patients require revisional surgery due to unsuccessful weight loss or complications. Only a limited number of studies have compared the differences in outcomes between primary and revisional bariatric surgery. In this retrospective study we aim to review outcomes after revisional surgery in comparison

to primary bariatric surgery. The main outcome of interest was the difference in incidence of postoperative complications and mortality and difference in terms of weight loss outcomes when comparing primary bariatric surgery to revisional bariatric surgery.
Methods: A prospectively maintained database of all bariatric procedures was retrospectively analyzed. Patients who underwent revisional surgery after primary bariatric surgery either in our own institution or after referral from elsewhere where identified. Patients only recieving band removal were excluded from the analysis.The indications for revisional surgery were either insufficient weight loss (<50%EWL) or due to complications such as dysphagia, persisting regurgitation or other band related complications such as pouch dilatation, band erosion or slippage.
Results: Between 2007 and January 2013 a total of 1566 patients recieved bariatric surgery in our institution of which 17% were revisions. Overall complication rate and major complication rate was signifcantly higher in revisional surgery group when compared to primary surgery (20% vs 5% and 8.4% vs 1.7% respectively, $p<0.01$). Also mortality rate was higher in the revisional surgery group when compared to the primary surgery group (0.2% vs 2%, $p<0.01$). In terms of weight loss the revisional group had significantly less percentage excess weight loss at 1, 2, and 3 years follow up, although mean BMI was not significantly different after 3 years follow up.
Conclusions: Complication rate and mortality rate was significantly higher in the revisional surgery group, but comparable to literature. Although revisional surgery has been generally established to be effective and after 3 years of follow up the mean BMI was 31 kg/m2 in both groups in our study, one should expect a better result considering these patients had a revisional procedure to gain a more healthy BMI. Prospective (randomized) controlled trials should be performed to investigate the optimal revisional procedure.

A6005

Laparoscopic Revision of Vertical Banded Gastroplasty: A Single Surgeon's Experience

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Background: Laparoscopic revisional surgery is an essential but challenging component of bariatric surgical practice. Vertical banded gastroplasty (VBG) was a common open bariatric procedure in 1980s and 1990s. Today VBGs account for a large population of patients who need revisional bariatric surgery because of outlet channel stenosis, staple line dehiscence, inadequate weight loss or combinations thereof. The aim of this study was to present a single surgeon's experience in management of failed VBG by laparoscopic revisional surgery.
Methods: A retrospective review of our prospectively maintained database was performed. A total of 34 patients with a previous open VBG were included in the study. All these 34 revisional surgeries were performed by a single surgeon over an 8 year period. Demographic data, body mass index (BMI), type of surgery, hospital stay, resolution of symptoms, and early and late complications were analyzed (Table 1).
Results: Mean age was 56.2 years (30-76) and the mean body mass index (BMI) at the time of revisional surgery was 44.4 (29-58) kg/m2. A total of 34 laparoscopic revisional surgeries were performed and the open surgery conversion rate was zero. Indications for surgery included 20 with gastric outlet obstruction (GOO) alone, 5 with staple line dehiscence and inadequate weight loss but without documented GOO, and 9 with a combination of the above. All 29 patients with GOO had a complete resolution of symptoms. In 13 patients the VBG was revised laparoscopically to a Roux-en-Y gastric bypass (RYGB), 7 patients were revised laparoscopically to sleeve gastrectomy, in 12 patients VBG mesh was simply taken down, and 2 patients had gastrogastrostomy. Mean length of hospital stay was 1.7 days (1-5) for the series and was 2.5 days (1-5) for the patients who were revised to RYGB. In this series of patients there were no reoperations in the first 30 postoperative days. There were no leaks or mortality. Early complications (30 days postoperative period) were seen in 2 patients and included one port site wound infection and one narrowing at the gastrojejunal anastomosis requiring endoscopic dilation. Late complications were seen in 3 patients (1 marginal ulcer, 1 G-J stricture dilated endoscopically, 1 internal hernia requiring surgery).
Conclusions: Our study highlights the concept that laparoscopic revision of VBG is safe and feasible. It provides significant improvement in gastric outlet obstruction symptoms. It is associated with low complication rates and we

have performed several cases over an eight-year period with zero 30-day reoperations and zero mortality.

A6100

Sleeve Gastrectomy: What's the deal with Reflux?

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Background: Laparoscopic Sleeve Gastrectomy (LSG) has established itself as a definitive procedure for morbid obesity. As opposed to the Laparoscopic Roux en y Gastric Bypass (RYGBP) which has consistently shown to resolve or improve gastro-esophageal reflux (GER) symptoms, LSG has been associated with mixed results. We reviewed our data in order to report on our experience with reflux after LSG.
Methods: We performed a retrospective review of our prospectively collected database on 350 consecutive patients who received a LSG at our institution between January 2010 and June 2013. We reviewed the documentation preoperatively and postoperatively regarding symptoms of GER including the duration of symptoms, treatment, resolution and the need for additional surgery.
Results: Of the 350 patients reviewed, there was sufficient follow up in 296 patients. The median age at surgery was 41 and the median BMI was 45.3. The male to female ratio was 1:10. 174 (59%) patients had no preexisting reflux and 122 (41%) patients had GER symptoms preoperatively. Of the 174 patients with no preoperative reflux, 49 patients (28%) developed new onset GER symptoms. Of the 122 patients that had preexisting GER symptoms, 53 patients (43%) had GER symptoms after surgery. Most of the patients responded to medical treatment or resolved completely. The incidence of intractable postoperative reflux requiring conversion from RYGBP to LSG was 2% (3 patients without preexisting reflux and 3 patients with).
Conclusions: Although some patients develop new or continue to have preexisting reflux symptoms after LSG, most are controllable with medications or resolve. The incidence of intractable reflux is low and can be reliably resolved with conversion to a RYGB. We continue to offer this surgery as treatment for morbid obesity even in patients with symptoms of reflux.

A6101

"Funneled Outlet" at the Incisura eliminates staple line leaks after Laparoscopic Sleeve Gastrectomy

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Background: Staple line leak after laparoscopic sleeve gastrectomy (LSG) is a troubling complication carrying significant morbidity and mortality. In large reviews, the incidence has been reported to be between 1.5 to 2.4%. Learning from our initial experience we have progressively modified our surgical technique which has resulted in elimination of this devastating complication.
Methods: We report on our analysis of a prospectively maintained database between June 2006 and March 2014. The operation was carried out with four ports, one 15 mm at the umbilicus and three 5 mm ports. We utilized 34F stomach tube for calibration. The resection of the stomach was started at 4-5 cm from pyloro-duodenal junction. First staple fire was done without the stomach tube in place, at a distance of one inch from the Incisura Angularis. The stomach tube was then advanced into the antrum and the stapler was roticulated inward to create an angle at the staple line corresponding to the notch of the Incisura. This created a 'funneled outlet' of the sleeved stomach at the Incisura.We clearly delineated the Angle of His with dissection and exposure of whole length of left crus of diaphragm. Last staple fire was kept 1 cm lateral to the Angle of His. This avoided long dog ear at the upper end. We used absorbable polymer reinforcement on the staple lines.
Results: A total of 651 LSG were performed. Median age was 36 years (range 18-70 years). Male to female ratio was 1 to 5.85. Median BMI was 46 Kg/M2 (range 34.2-82.2) . In the first 123 patients we experienced 4 leaks, all occurring in the proximal part of staple line. With modification of our technique; we have performed 528 LSG without a leak.
Conclusions: We believe that placing a calibrating tube beyond the Incisura before first firing of the stapler, results in distortion of the

stomach at Incisura and staple line tends to be close to the Incisura. This creates a step thus contributing to higher pressure in the sleeve stomach which results in leaks. By creating a 'funneled outlet 'at the Incisura with our technique, we have been able to eliminate leaks in more than 500 hundred cases.

A6102

Hiatal Hernia Repair (HHR) and Omentopexy (OP) in Vertical Sleeve Gastrectomy (VSG) are associated with decreased post-operative GERD symptoms at 1 year.

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Background: There is a growing body of evidence indicating that VSG is associated with post-operative GERD symptoms in 10-50% of patients. Conflicting data exist on whether VSG should be even considered in patients with GERD and/or hiatal hernia. Several technical aspects of VSG were suggested to derease risk of postoperative reflux symptoms including HHR, avoidance of retained fundus and gastric sleeve anchoring with OP. Purpose of this study was to evaluate frequency of symptomatic GERD in VSG patients with and without HHR and OP.
Methods: In consecutive series of 187 VSG done in 2010-2013, 119 procedures (study group) were combined with HHR (63%) and 68 without HHR (36%) (control). There was no difference in patient's characteristics between groups: age (median 42 y), sex (79% F), BMI (median 46.8). Small axial defects with esophago-gastric junction below level of hiatus were repaired with anterior cruroplasty in 109 patients while in 10 patients with any degree of intra-thoracic stomach a posterior repair was performed. Initial cohort of 75 patients had VSG without OP and in subsequent 112 cases OP was routinely done as part of VSG. Analysis included 90-day morbidity, %EBWL and daily use of antacid medications (H2 blockers, PPI) at 1 year of follow-up. Follow-up data were available for 88% of patients in both groups.
Results: At 1 year after VSG, daily antacids use was reported by 25.2% in the study group Vs 25% in the No HHR group (p=0.97). In subset of patients, HHR with OP was associated with use of antacids in 14.3% compared to 40% in patients with HHR and no OP (p=0.0033). Contrary to that, in subset of patients without HHR, OP was associated with only a trend towards decreased use of antacids (19.2% vs. 30.3%; p=0.33). Anterior cruroplasty with OP versus no OP resulted in significant reduction of symptomatic GERD (14.3% vs. 35%; p=0.017). While number of patients in posterior cruroplasty subgroup was small, OP combined with posterior cruroplasty appeared to be beneficial as well for reduction of proportion of symptomatic patients (p=0.053).
Conclusions: With all the limitations of this retrospective study, presence of hiatal hernia by itself should not be considered contraindication to VSG. Any degree of hiatal defect should be repaired during VSG. Omentopexy appears to provide additive effect to HHR in reducing number of symptomatic GERD patients at 1 year of follow-up.

A6103

Feasibility and Outcomes of Laparoscopic Sleeve Gastrectomy after Solid Organ (Liver, Kidney or Heart) Transplantation

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Background: Severely obese patients have worse short and long-term outcomes after solid organ transplantation. Laparoscopic sleeve gastrectomy (LSG) is one of the surgical options for these severely obese transplant patients, but there are limited data on its feasibility, safety, and outcomes after solid organ transplantation. The purpose of this study is to report peri-operative and long-term outcomes with LSG after solid organ transplantation.
Methods: We performed a retrospective review of prospective dataset that included patients who underwent a solid organ transplant (liver, kidney or heart transplant) and subsequently underwent LSG at an academic tertiary medical center from 2002 to 2013. Outcomes studied were perioperative complications, weight loss, and resolution or improvement of obesity associated comorbidities.
Results: Ten patients with remote solid organ transplantation [orthotopic liver transplant (n=5), kidney transplant (n=4), heart transplant (n=1)], underwent LSG. The average time from transplant to LSG was 6.3 ± 1.1 years and the

average rise in body mass index (BMI) during this period was 7.5 ± 2.2 kg/m2. Patient's age and BMI at LSG were 54.7 ± 2.5 years and 44.7 ± 2 kg/m2, respectively. All patients had hypertension, 50%(5/10) had hyperlipidemia, and 70%(7/10) had type 2 diabetes. Perioperative complications occurred in 2 patients. These include a reoperation for post-operative bleeding (kidney transplant patient) and a splenic capsule tear during LSG which required a splenectomy (liver transplant patient). This resulted in a partial portal vein thrombosis, which was treated with thrombolysis, stenting and anticoagulation. There were no long-term sequelae or deaths. Excess weight loss at 6, 12, 18, and 24 months of follow-up was 33%, 48%, 53%, and 60%, respectively. Of the 10 patients taking medications for hypertension before LSG, 70% (7/10) were taking fewer medications and 30% (3/10) were off antihypertensive medications 12 months after surgery. Of the seven patients with type 2 diabetes two experienced a complete remission (no medication use and normal HbA1C) and 4 reduced diabetes medications use by greater than 50% despite chronic use of prednisone. **Conclusions:** Laparoscopic Sleeve Gastrectomy is feasible and effective in selected severely obese patients who have undergone solid organ transplantation, including after orthotopic liver transplantation. Larger studies are needed to better determine safety standards.

A6104

First National Safety Audit for Laparoscopic Sleeve Gastrectomy in Singapore

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Background: Obesity is the world's most prevalent metabolic disease and continues on a rising trend. In Singapore, this incidence rose from 6% in 1998 to 6.9% in 2004, then to 10.8% in 2010. Bariatric surgery produces significant weight loss with improvements in obesity-related comorbidities and survival. Laparoscopic sleeve gastrectomy, first performed as the initial step of a staged laparoscopic duodenal switch, is increasingly performed as a stand-alone bariatric procedure. From 5% of all bariatric procedures in 2006, laparoscopic sleeve gastrectomy is now the most commonly performed locally- more than 60% of all bariatric procedures in 2013. We present our first nationwide audit of its safety results. **Methods:** Prospectively maintained bariatric surgery databases of all 6 public institutions were included in our analysis. All patients who received laparoscopic sleeve gastrectomies from 15 June 2006 (when the first such procedure was performed in Singapore) to 31 January 2014 were included in this study. Patients with missing data, or who had defaulted follow-up were excluded from analysis. The safety profile of laparoscopic sleeve gastrectomy locally was determined by assessing the early 30-day morbidity and mortality rates, as well as the late 1-year morbidity and mortality rates. **Results:** A total of 578 patients underwent laparoscopic sleeve gastectomy in the study period. After excluding patients with missing data or who had defaulted, 560 patients were identified for assessment of early morbidity and mortality rates. The early 30-day total morbidity rate was 5.36%, with the rates of leaks, haemorrhage, strictures and reflux as 1.25%, 1.25%, 0.36% and 0.18% respectively. Two patients had small bowel perforations, 1 had a distal oesophageal spasm and 1 had a proximal sleeve herniation into the thorax with gastro-oesophageal obstruction. The 30-day mortality rate was 0.18%. Three hundred and four patients were identified for late 1-year complications. The total rate of complications was 3.29%, with the rates of leaks, strictures and reflux as 0.33%, 0.66% and 2.30% respectively. There were no late mortalities. The rate of default at 1 year was 22.6%. **Conclusions:** Laparoscopic sleeve gastrectomy has a good safety profile locally, with low morbidity and mortality rates similar to published reports. We believe that this national multicentre study is fairly representative of our local experience. The combined data also provided a large study population for analysis and we believe this adds to the paucity of safety data in

Asian centres. Our audit faced some limitations- this was a retrospective review. There are patients who had missing data or defaulted follow-up. This study audited all 6 public institutions, but failed to examine the safety of laparoscopic sleeve gastrectomies in the private sector.

A6105

Laparoscopic sleeve gastrectomy versus gastric bypass in late adolescents

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Sint Franciscus Gasthuis[1] Erasmus MC[2]

Background: Interest in bariatric surgery in adolescents is increasing, since childhood and adolescent obesity equals increased health risks later in life. Laparoscopic Roux en-Y Gastric Bypass (LRYGB) and Laparoscopic Adjustable Gastric Banding (LAGB) are most commonly performed and studied in adolescents. More recently laparoscopic sleeve gastrectomy (LSG) is suggested to be a safe alternative, because of the supposed advantages of less malnutrition and no foreign body. The aim of this study is to investigate long-term effects after LSG in late adolescents, in terms of both weight loss and comorbidity, in comparison to LRYGB. **Methods:** Data was collected retrospectively in our patient cohort with age 18-20 years, who underwent LSG or LRYGB in our bariatric clinic between October 2006 and December 2013. Baseline characteristics, anthropometric measures and information on comorbidities and medication were collected from preoperative screening visits and annual follow-up visits. Differences between the two procedures, in terms of baseline characteristics, BMI, percentage excess weight loss (%EWL) and comorbidity were described as median (min – max) or percentage and were analyzed using non-parametric tests. **Results:** The current patient cohort consisted of 55 adolescents (11 male, 44 female; median age 19) of which 40 subjects underwent LSG. Significant differences were seen in sex, with 100% female in LRYGB and 72,5% female in SG ($p<0.05$) and operation time with 78 min (60 – 109) in LRYGB and 49 min (31 – 149) in LSG ($p<0.001$). Median follow-up was 14 months (0 – 65) in LSG patients, and 10 months (0 – 34) after LRYGB.Significant differences in %EWL were seen at 1-year follow-up with %EWL of 84,5% (45.9 – 124.1) in LGS and 67.8% (40 – 90.5) in LRYGB ($p<0.05$), at 2-year follow-up with %EWL of 92.8% (40.6 – 126.4) and 66.7% (40.8 – 89.8), respectively ($p<0.05$) and at 3-year follow-up with %EWL of 75.2% (61.2 – 107.6) and 32.4% (13.2 – 51.5), respectively ($p<0.05$).Hypertension and type 2 diabetes were both present preoperatively in two patients, all of them underwent LSG, and resolution was achieved in all subjects. Dyslipidemia was present in two patients, one in each group and lipid profiles normalized after surgery. **Conclusions:** In our patient cohort, LSG showed significant better results than LRYGB in terms of %EWL. All comorbidities resolved after SG, assuming the procedure is non-inferior to LRYGB on this aspect.Long-term results on LRYGB are missing, due to small numbers and short follow-up. However, our results in LRYGB are comparable with other studies.Considering the %EWL achieved after LSG, the effects on comorbidities and the association of LRYGB with nutritional deficiencies, LSG may be superior to LRYGB in late adolescents, but this should be verified in larger series of adolescent obese patients.

A6106

Does Oversewing and Buttressing Really Reduce Leak Rate? : 1,002 Longitudinal Sleeve Gastrectomy Patient Meta-analysis

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Background: Of the many complications that can arise from a longitudinal sleeve gastrectomy (LSG), one of the most dangerous is a staple line leakage. In an effort to reduce this occurrence, medical literature suggests the adoption of oversewing or buttressing following stapling. Oversewing is a technique whereby the operating physician sutures over the staple line in a crossing fashion. Buttressing on the other hand is a technique where by the newly formed gastric sleeve is stitched in and effort to envelop and protect the staple line. Yet with oversewing and buttressing, many case studies mention a reduction in the leak rate by insignificant proportions and several studies lack large sample sizes to make such claims. We present

a meta-analysis of 1,002 (LSG) patients who have not received any oversewing or buttressing following their longitudinal sleeve gastrectomy (LSG) procedure. The aim of this study is to compare the effectiveness of supporting the staple line (Oversewing, Buttressing) versus a standard staple line with no effective "support".
Methods: Study consisted of 1,002 patients (56.1% female 43.9%Male) who underwent longitudinal sleeve gastrectomy (LSG) from 2008 till 2014. Patients underwent standard laparoscopic longitudinal sleeve gastrectomy utilizing 4-5 trocars in a semi-circular fashion over the lower abdomen. Formation of the gastric sleeve was achieved using an oral gastric tube with multiple Green, Gold, and blue firings from the Antrum up through the fundus. The staple line was then tested by CO2 insufflation over saline. Once the integrity of the staple line was confirmed a tissue sealant was applied over the newly formed staple line. Patients were monitored one (1) month, three (3) month, six (6) month, one (1) year postoperatively.
Results: Main complications evaluated were Leak Rate, Abdominal internal bleeding, Fistulas, and Stenosis (p=1,002)Staple line Leak rate: 0%Abdominal internal bleeding: 0.001%Fistulas: 0%Stenosis: 0%Average male weight loss (lbs): 119lbsAverage female weight loss (lbs): 83lbs
Conclusions: According to the following study on 1,002 Longitudinal sleeve gastrectomy (LSG) patients were no staple line reinforcement was applied, the staple line leak rate was 0%, far below the national average of 3-9%. In conclusion, lack of oversewing or buttressing, and a simple application of tissue sealant to and LSG staple line is a viable option for surgeons seeking a dramatic reduction in staple line leak rates. Research regarding the torsional stress of oversewing and buttressing on a LSG staple line should be further studied as they may be the primary proponent of increased leak rates in studies where unsupported staple lines out perform supported staple lines.

A6107
Recent Trends in Morbidly Obese Patient Undergoing Sleeve Gastrectomy
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Background: Sleeve gastrectomy (SG) was initially considered as a restrictive bariatric procedure but current studies documented its considerable weight loss effect and also metabolic improvements. There is a significant increase in SG nationally in recent years; however, it is not clear if there are other patient characteristics that may be influencing this SG trend. Therefore, we explored demographic variables and comorbidities among patients who had recently had a SG versus earlier patients with SG to identify any possible differences between the two groups.
Methods: A retrospective medical chart review of adult (18-77 years) morbidly obese patients who underwent SG by a single surgeon from 2009 through 2014 was analyzed. Patients selected their type of operation after attending a preoperative educational seminar and personal consult with the surgeon. Patients (N=505) were categorized in two groups: Group A (completed SG from January 2009 to December 2012, n=239) and Group B (completed SG from January 2013 to April 2014, n = 266). Demographics and preoperative comorbidities were compared between two groups via Student's t-test and Chi-Square analysis. We repeated analysis for all primary bariatric surgeries (N=1996) between two aforementioned periods in order to compare trends in SG patients with trends in all patients.
Results: 505 patients underwent SG with mean age of 42.6 ± 13 years, 71.7% female, and mean BMI of 45.2 ± 7.2 kg/m2. Age, gender, and preoperative BMI were comparable in both groups of SG. However, ethnicity did vary significantly between the two groups; there were fewer Hispanic patients in group B (38.3% versus 51.9%) and more non-Hispanic blacks (27.8% vs 23.8%) and non-Hispanic white (28.9% vs 19.7%) versus group A (p=0.016). In Group B, there were significantly more patients with diabetes mellitus (19.5% vs 10%, p=0.003), hypertension (50.8% vs 38.1%, p=0.004), hyperlipidemia (26.7% vs 16.7%, p=0.007), and obstructive sleep apnea (OSA) using continuous positive airway pressure therapy (12.4% vs 5.9%, p=0.003). Repeating the analysis in all primary bariatric surgeries showed similar

significant trends in ethnicity, hypertension, and hyperlipidemia but there was no significant difference in diabetes mellitus and OSA. More patients with gastroesophageal reflux disease (GERD) were among all bariatric patients after 2013 but GERD remained constant in SG subgroup (Table 1).
Conclusions: Over the past 16 months, more patients with diabetes mellitus and OSA selected SG as their bariatric surgery type versus those who underwent SG more than two years ago. This may be due to recent evidence showing long term metabolic improvements among patients undergoing SG. GERD seems to remain a concern in SG as it remained constant in this subgroup despite growing in all bariatric patients.

A6108
Hiatal hernia repair should be performed with all sleeve gastrectomies
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University of Nebraska Medical Center[1]

Background: Morbidly obese patients can have a multitude of comorbidities including gastroesophageal reflux disease (GERD) and the presence of a hiatal hernia. Recent reports suggest that GERD in the setting of morbid obesity cannot be effectively managed by sleeve gastrectomy (SG) alone. The aim of this study was to determine the post-operative effects of LSG and hiatal hernia repair (HHR) for morbid obesity on symptoms of GERD.
Methods: The Bariatric Outcomes Longitudinal Database (BOLD) is a prospectively collected database of patients who have undergone bariatric surgery. Patients who underwent a SG and a HHR were identified. A pre-operative GERD score, 0-4, was compared to the patients' post-operative GERD score. GERD score of 0 was defined as no reflux; a score of 1-4 was defined as patients taking medication. The patients were placed into two groups: Group 1 (0-1) "none-minimal reflux"; and Group 2, (2-4) "Moderate -severe reflux".
Results: 387 patients underwent a SG and HHR from June 2007 to December 2009. Preoperative body mass index (BMI), gender, race, follow up time, and excess body weight (EBW) loss were similar between the two groups. Group 1 was found to be younger (48 vs. 52; p=0.009) and had a lower rate of pre-operative proton pump inhibitor (PPI) use (8.52% vs. 57.32%; p<0.001). Post-operatively group 1 continued to have lower PPI use (12.1% vs.24.4%; p<0.002). The median pre-op GERD score for groups 1 and 2 was 0 and 3 respectively. Post-operatively the median score was unchanged for group 1 and decreased in group 2 (0 and 2). Overall, group 1 GERD symptoms were improved or remained the same in 89.5% of the patients. In group 2, 52.15% had similar or worse symptoms of GERD.
Conclusions: The lack of improvement or worsening of symptoms for patients with severe GERD should deter surgeons from offering an SG to this patient population. SGs should only be offered to those patients with minimal or no symptoms of GERD due to its low incidence of worsening symptoms. Clinical studies which include preoperative and postoperative pH data should be performed in the future to determine if patients' symptoms correlate to actual acid exposure of the esophagus and help determine which patients are candidates for sleeve gastrectomy.

A6109
Efficacy of "Standardised" Laparoscopic Sleeve Gastrectomy in management of Type 2 Diabetes Mellitus in Morbidly Obese Indians.
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Background: To evaluate the efficacy of a "Standardized" Laparoscopic Sleeve Gastrectomy as a Bariatric Procedure in Management Of Type 2 Diabetes Mellitus with Obesity in the Indian subcontinent.
Methods: 204 patients of Morbid Obesity (BMI > 32.5) with Type 2 Diabetes Mellitus (FBS >126 mg /dl and HbA1C > 6.5 as per WHO), underwent Laparoscopic Sleeve Gastrectomy between January 2010 and January 2013. As per our "STANDARDIZATION" all patients had a sleeve of stomach created over a 38 Fr Gastric Calibration Tube, starting 4 cm from the pylorus. All patients had Intraoperative Gastroscopy and underwent a Gastrograffin swallow on first Post

Operative day. Preoperatively, baseline levels of Glucose, Insulin,HbA1C were evaluated and HOMA-IR index was calculated. Postoperatively patients were re-evaluated at 1month, 6 month,1 year and then yearly follow-up. **Results:** : In the retrospective analysis of our data we found that there was resolution of Diabetes in (92 %) of cases (Resolution defined as HbA1 C< 6.5 and FBG < 126 mg/dl) Preoperatively, the mean duration of diabetes was 6.39 Years. Mean FBG was 154 mg/dl, HBA1c (8.375 %). Fasting and postprandial Insulin levels were (31.8 µU/mL) & (65.7 µU/mL). HOMA-IR was 12.09.At 1 year postoperatively the retrospective analysis of 204 patients showed a mean FBG of 101 mg/dl, HbA1C 6.4 %. Mean Fasting and postprandial Insulin levels were (13.5 µU/mL) & (20 µU/mL) respectively. HOMA-IR was 3.36At 2 years of surgery, retrospective analysis of 104 patients showed a mean FBG of 93.7 mg/dl, HBA1c was 5.78 %. Mean Fasting and postprandial Insulin levels were (5.5 µU/mL) & (11.8 µU/mL) respectively. HOMA-IR was 1.27.At 3 years of surgery, retrospective analysis of 40 patients showed a mean FBG of 90.5 mg/dl, HBA1 c 5.5 % , Mean Fasting and postprandial Insulin levels were (3.2 µU/mL) & (10µU/mL) respectively. HOMA-IR was 0.71. Weight regain of a mean weight of 8.4 kg , (5.4% of EBW) occurred in 5 patients at the end of three years follow up. **Conclusions:** We conclude that Laparoscopic Sleeve Gastrectomy as a Stand Alone Bariatric Procedure in Management of Type 2 Diabetes Mellitus with Obesity in the Indian subcontinent is a feasible option. It provides an excellent quality of life post operatively without causing nutritional deficiencies. We believe that the need of the hour for Indian populations which is predominantly vegetarian and has a lower protein intake is to restrict more and malabsorb less.

A6110

Does Sleeve gastrectomy live up to our expectations?

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Background: According to the World Health Organization an alarming scenario of estimated 2.3 billion overweight and 700 million obese people have to be faced by our health care systems in 2015. The conservative approach via dietary measures, exercise and medication is mostly unsuccessful. It is an undisputed fact that metabolic surgery represents the only effective treatment option for this pandemic nowadays. **Methods:** During the decade from 2003-2012 389 patients underwent a sleeve gastrectomy in our department of general surgery. Data such as weight loss (EWL%), complication-rate, QOL (BAROS-score), impact on obesity related comorbidities, and redo-procedures were analyzed retrospectively. Another key aspect was the development of postoperative gastroesophageal reflux. Big emphasis was put on age dependent weight loss and QOL as well as long-term results, namely 8-year results. **Results:** From 2003-2012 a total of 389 sleeve gastrectomies were documented, whereof 98,8% were performed as laparoscopic surgery. A return rate of follow up could be attained in 90.2%. The averaged follow up was 37.2 months with a maximum of 120 and a minimum of 12 months. Retrospective analysis of weight parameters showed a %EWL of 58.2% and a BMI-loss of 13.5 kg/m2. Postoperative complications occurred in 19 patients (4.9%). Redo-procedures were performed in 5.7% (22 patients). 84% of our patient´s collective showed no aggravation of GERD. **Conclusions:** Laparoscopic sleeve gastrectomy represents an efficient bariatric therapy option with a low complication rate and a beneficial impact on patient´s QOL. Nevertheless the key factor for successful metabolic surgery remains continuous follow up in the context of a multidisciplinary setting.

A6111

Improvements in Adolescent Depressive Symptoms and Food Cravings at One Month Post-Op Vertical Sleeve Gastrectomy.

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Background: We have anecdotally noticed that our adolescent patients report less food cravings

after vertical sleeve gastrectomy (VSG). Patients who undergo other bariatric procedures do not necessarily report a decrease in food cravings. Unique to VSG is the removal of most of the body of the stomach and the fundus, the primary producer of ghrelin. The aim of the present study was to examine changes in food cravings and depressive symptoms in adolescents undergoing sleeve gastrectomy. Consistent with previous literature, we hypothesized that depressive symptoms would improve. **Methods:** Patients were included in our study if they underwent VSG and had a Quick Inventory of Depressive Symptoms Self-Report (QIDS-SR) and Modified Trait and State Food Cravings Questionnaires (MTSFCQ) completed at three timepoints: a baseline visit occurring at least one month prior to their psychological evaluation, during their psychological evaluation, and 1-3 months post-surgery. QIDS-SR is a 16-item assessment of depression with good validity and reliability. The MTSFCQ is a 21-item validated measure designed to assess food cravings in response to emotions or other temporal or situational variables. Paired sample t-tests were conducted in order to examine changes in scores from baseline to post-surgical follow-up. Shapiro-Wilk tests of normality of distribution was performed on the variables. **Results:** We identified 14 adolescents who met criteria (at baseline: mean age = 16.09, SD = 1.46, female = 92.3%). At baseline, psychological evaluation, and post-operatively we found (mean, (SD)) BMI = 50.0 (9), 49.6 (9.6), 46.1 (9.2); QIDS-SR = 8.5 (5.5), 6.5 (3.9), 5 (1.8), and MTSFCQ = 15.6 (4.4), 15.5 (6.2), 11.8 (6.7). The Shapiro-Wilk test suggested that food craving scores at baseline ($w = .76$, $df = 5$, $p < .05$) were not normally distributed. Mean difference between baseline and post-op food cravings measure was 8.89 (SD = 4.20), which was significant ($t = 5.60$, $p < .01$). Mean difference of QIDS-SR scores at baseline and post-surgery was 3.5 (SD = 5.5), indicating a decrease in reported symptoms for which there was a trend for significance ($t = 2.19$, $p = .051$). There was no significant difference between scores at baseline and the psychological evaluation or between scores at psychological evaluation and post-op. Effect sizes using eta-squared indicated large effect sizes of .30 and .84, respectively. **Conclusions:** Adolescent undergoing sleeve gastrectomy have a decrease in food cravings and a trend for decrease in depressive symptoms one month post-surgery. The decrease in food cravings so soon after surgery suggests a causal link to the gastrectomy procedure. This is supported by the fact that there was no significant drop in food cravings between baseline and the pre-operative psychological assessment. This study is limited by its sample size and non-normal distribution of the food craving data. A larger study is warranted to validate this data.

A6112

Early experience on Singe Port Sleeve Gastrectomy at a Mexico City Public Obesity Clinic (Clínica Integral de Cirugía para la Obesidad y Enfermedades Metabólicas)

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Hospital General Dr. Ruben Lenero[1]

Background: Laparoscopic Sleeve Gastrectomy is gaining ground as an only step bariatric procedure, offering an adequate weight loss and comorbidities resolution. Laparoscopic Single Port Sleeve Gastrectomy (LSPSG) is an alternative technique, decreasing surgical trauma through a transumbilical 2.5 cm size incision. We report our initial experience of LSPSG at Clínica Integral de Cirugía para la Obesidad y Enfermedades Metabólicas (CLIO), the main bariatric public center in Mexico. **Methods:** A retrospective, comparative study was conducted among patients undergoing vertical sleeve gastrectomy, performed by a single surgeon at CLIO from December 2012 to August 2013. All consecutive patients with a minimum follow up of 6 months were included and divided in two groups: Group 1(G1): LSPSG and Group 2 (G2): Conventional 5 trocars sleeve gastrectomy (CLSG). Operative time, blood loss, complications, reinterventions, intrahospitalary stay, percentage of excess weight loss (%EWL) and body mass index (BMI) at 1, 3 and 6 months were compared. Surgical outcomes were tested by the Student t test. **Results:** A total of 24 patients underwent sleeve gastrectomy which 6 were LSPSG.The patients were mainly female (G1:100% and G2:72.2%) with a mean age of 32 years (G1: 24-44 vs G2

18-61). In G1, 66.7% had grade 2 obesity and 33.33 % had grade 3 obesity, whereas in Group 2, 11.1 % had grade 1 obesity, 61.1 % had grade 2 obesity, and 11.1 % had grade 3 and 4 obesity. Mean initial weight for G1 was 98.7+14.8kg (92-117) vs.113+28.2 kg for G2 (82-147) (p=NS). Mean operative time was 116.7+29.9 minutes for G1 (60-120) vs 100.6+19.3 minutes for G2 (65-140) (p=NS). Intraoperative bleeding averaged 88.3ml (50-150) for G1 vs 61.67ml (10-250) for G2 (p=NS). One patient in G1 presented a seroma and 1 patient in G2 presented bleeding in one port requiring surgical resolution. An extra trocar was placed in 1 patient in G1 due to technical difficulty and used for drainage. The mean length of hospital stay was 4 days for G1 vs 4.56 for G2 (p=NS). There were no mortalities. Mean %EWL at 1, 3 and 6 months was 43.7, 56.95, 71.28 vs 42.7, 60.46, 85.43% for G1 and G2 respectively (p=NS).
Conclusions: Single port sleeve gastrectomy is a technically safe surgery that offers similar perioperative results and excess weight loss compared to conventional laparoscopic sleeve gastrectomy. Even though patients with conventional sleeve gastrectomy had higher BMI, no statistical difference was observed between groups. Additionaly, no differences were found in terms of bleeding, surgical time, complications or hospital stay. However, since this is only the initial experience, a larger sample size is required to confirm these affirmations.

A6113

Laparoscopic Sleeve Gastrectomy (LSG): 3-6 Year Follow-up

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Background: Laparoscopic Sleeve Gastrectomy (LSG) has become an effective bariatric technique in terms of excess weight loss. We present our results of a cohort of patients with LSG and 3 to 6 year follow up (FU) in terms of weight loss and regain
Methods: Retrospective cohort study. Population: patients undergoing LSG between August 2006 and May 2011 operated by our team according to an established protocol with 6 year FU. Primary endpoints: excess BMI loss (% EBMIL) and weight regain, defined as increase in BMI at least 10 % over the lowest BMI reached after surgery (%RBMI). Statistical analyses using Stata software, version 11.
Results: Of the initial 133 patient cohort, 40.6%, 26.3%, 18.8% and 9.8% of patients completed 3, 4, 5 and 6 years FU, respectively. 67.7% female, mean preoperative age 39.6 (19-65) years and BMI 37.9. Main endpoints according to FU as follows: mean %EBMIL 80.6 %, 68.9%, 59.3% and 45.2% at 3,4,5 and 6 year FU, respectively. According to weight regain: 24.1%, 31.4%, 44% and 38.5% of patients regained a mean %RBMI of 8.3%, 6.1%, 10% and 7.44 % at 3,4,5 and 6 year FU, respectively.
Conclusions: Our results in terms of %EBMIL and %RBMI after LSG might be compared with other published series. A more complete and longer FU is required to draw better evidence based conclusions

A6114

Early Outcomes of Laparoscopic Sleeve Gastrectomy in a Multi-Ethnic Asian Cohort

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Background: As a stand-alone bariatric surgery procedure, laparoscopic sleeve gastrectomy (LSG) is arguably the most popular bariatric procedure in Asia and it is no different in Singapore. Since the first procedure in early 2007, it has overtaken gastric band insertion as the most popular bariatric operation in Singapore. In this study, we report our initial experience at National University Hospital and Khoo Teck Puat Hospital. The response to LSG in terms of weight loss and resolution of the comorbidities among the different ethnic groups is unknown.
Methods: From a prospectively maintained database of bariatric surgeries performed at two tertiary hospitals in Singapore, data on all patients who underwent LSG between 2008 and 2013 was reviewed. Patient demographics, peri-operative data, weight and body mass index

(BMI) changes and significant complications are presented. Excess weight was calculated based on ideal body weight at BMI of 23 kg/m2. Comorbidities of type 2 diabetes mellitus (T2DM), hypertension and hyperlipidemia, and their resolution after LSG are also presented. **Results:** A total of 232 operations were performed on 99 male and 133 female patients. Mean patient age was 38 ± 11 years. Mean pre-operative weight and BMI were 117.8 ± 26.5 kg and 42.9 ± 8.1 kg/m2, respectively. The multi-ethnic cohort consisted of Chinese (n=81), Malay (n=72), Indian (n=59) and others (n=20).Follow-up duration was 11.4 ± 9.6 months. At 6-, 12-, 18- and 24-month follow-up, mean percentage excess weight loss was 52.0%, 61.9%, 64.0% and 54.9%, respectively.Post-operative complications occurred in 9 patients (3.9%), 5 of whom required reoperation. The complications encountered were small bowel perforation (n=1), port site bleeding (n=1), gastric tube stricture (n=2), intra-peritoneal hematoma (n=2) and staple line leak (n=3). There was no mortality in our series.Sixty-one patients (26.3%) had T2DM. Mean HbA1c decreased from 7.98% pre-operatively to 7.04%, 6.47% and 5.92% at 3-, 6- and 12-month post-operation, respectively. Of these, 31 patients (50.8%) achieved remission of T2DM. Some 112 patients (48.3%) had hypertension and the remission rate was 42.9%. Ninety-seven patients (41.8%) had hyperlipidemia and the remission rate was 32.0%. Comparison among the different ethnic groups showed that the resolution of T2DM, hyperlipidemia and hypertension were all lower in the Malay (40.9%, 26.7%, 32.4%) as compared with the Chinese (72.2%, 36.7%, 48.8%) and Indian (56.3%, 35.7%, 52.2%).Failure to loose >50% of excess weight at 12 months occurred in 11.1% of Chinese, 16.7% of Malay and 13.6% of Indian. **Conclusions:** LSG is a safe and effective operation for achieving significant weight loss and co-morbidity improvement. The complications and outcomes at our centers are similar to those reported in literature. The effect of LSG on the resolution of T2DM, hyperlipidemia and hypertension appears to be least in the Malay ethnic group compared with the Chinese and Indian ethnic groups. This may be related to the lower excess weight loss achieved in the Malay ethnic group.

A6115

Gradual compression stapling (GCS)using varying height staples combined with complete oversewing with omentum for Vertical Sleeve Gastrectomy (VSG)

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Background: VSG is the fastest growing weight loss surgery operation. Although touted as potentially having lower complication rates than other stapling procedures, issues such as bleeding, leak and stricture do occur and can be difficult to treat. As a result, a variety of approaches have been advocated to potentially reduce the incidence of these occurrences. They include the use of staple line reinforcement, oversewing with suture by imbrication or simple technique, or a combination of these techniques. In lieu of using buttress material, we have performed VSG using GCS with complete oversewing of the staple line using vascularized omentum and studied the early outcomes. **Methods:** Between October to April 2014, 113 cases have been performed(106 VSG, 7 Removal LAGB to VSG) over 36 french bougie with complete oversewing of staple line with running 2-0 PDS. The first fire is taken 3 to 4 cm from pylorus angling 30 degrees to left shoulder with black Fire of GCS. A 2nd black fire is taken without angulation. Purple fires are taken at 15 degrees to the rt shoulder, completing the line at the gastric side of the GE junction. The crura are dissected completely in every procedure, all hiatal hernias repaired, and the epiphrenic fat pad removed. The omentum is used to oversew the staple line using imbricating sutures with 2-0 PDS to the angularis and then simple suture to the end of the line to re create the greater curvature. No buttress is utilized. Pulsatile stockings and pre operative enoxaparin are used for DVT prevention in all patients. Patients were ambulated on day one of surgery and enoxaparin given daily until discharge. **Results:** Of the 113 patients, 77 were female and 36 male. Mean BMI for primary VSG was 44 (range 35 to 79) and 46 for removal LAGB to VSG) Mean operative time was 66 minutes for primary VSG (range 38 to 190- synchronous incisional hernia repair) and 122 minutes (range 81-153). There were no leaks or unscheduled returns to the operating room. One patient required 2 Unit blood transfusion 24 hours after surgery. No patient required endoscopic

therapeutic procedure and 2 patients required re admission for poor po intake, CT scan and endoscopy negative. One patient with poor intake had PE diagnosed on POD 32. **Conclusions:** The combination of GCS and complete oversewing with omentum seems to provide quality results without the added cost of staple line reinforcement. Our results show this can be performed without excessive operative times. While we initially performed the complete omentopexy to add security against bleeding and leak, by re creating the greater curvature of the stomach migration and kinks may be prevented. In future investigations we hope to ascertain whether our technique can reduce the incidence of GERD symptoms. Comparison of this technique to buttress material should be done, as this may represent an effective low cost alternative to staple line reinforcement.

A6116

Reasons and Outcomes of Conversion for Failed Laparoscopic Sleeve Gastrectomy to Roux-en-Y Gastric Bypass

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Background: Laparoscopic sleeve gastrectomy (LSG) as a primary procedure in bariatric surgery has gained popularity. The Conversion to Roux-en-Y gastric bypass (RYGB) has been described as a treatment option for failure of LSG, including insufficient weight loss, unresolved comorbidities or complications such as leak, strictures and severe gastroesophageal reflux disease (GERD). The aim of our study is to determine the reasons and outcomes of those patients who have undergone a conversion from LSG to RYGB. **Methods:** A retrospective review of a prospectively collected database was conducted between April 2011 and March 2014. **Results:** Conversion to RYGBP was identified in 19 patients. The mean time between the primary LSG and the conversion to RYGB was 36.8±33.33 months. Of the 19 patients, 5 (26.3 %) suffered from intractable GERD, 3 (15.79 %) by virtue of weight loss failure, 10 (52.63 %) were do to leaks and 1 patient (5.26 %) had dysphagia as a result of a stricture. Of the 19 patients, 18 were converted laparascopically. Intraoperative complications included bleeding (5.26 %) and iatrogenic bowel perforation (5.26 %). Early post-operative complications (<30 days) were wound infections (5.26 %) and marginal ulcers (5.26 %). Finally, late post-operative complication included only one case of esophageal ulcer. The overall follow up period was 5.82±7.14 months. **Conclusions:** The conversion of LSG to RYGBP due to weight loss failure, GERD and sleeve leakage is a safe and effective procedure in the hands of experienced surgeons. However, additional follow-up and studies are needed to define the long- term outcomes.

A6117

The Incidence of Cholecystectomy after Laparoscopic Sleeve Gastrectomy in Lebanon

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Background: Rapid weight loss is a recognized risk factor for cholelithiasis. The incidence of gallstone formation has been reported to range from 10% to 38% after Roux-en-Y Gastric Bypass (RYGBP). To our knowledge, the literature has no studies that analyze the incidence of symptomatic gallstones requiring cholecystectomy after Laparoscopic Sleeve Gastrectomy (LSG). This study aims to evaluate the incidence of Cholecystectomy (CCE) after LSG in Lebanon. **Methods:** A retrospective chart review of patients who underwent LSG between January 2009 and May 2012 at two bariatric surgery units was performed. The patients with previous CCE, concomitant CCE, and previous weight-reduction operations were excluded from the analysis. The outcome measures were the numbers of patients who experienced symptomatic cholelithiasis or gallstone complications and subsequently required CCY. **Results:** A total of 370 LSG's were performed in the study period of which 292 met the inclusion criteria. The mean age of the patients was 33.9 ±11.6. 187 (64%) of the patients were female and 105 (36%) were male. Diabetes Mellitus was the most common co-morbid condition, found in 54 patients (18%). The incidence of

symptomatic gallstones requiring CCE after LSG was 7.9 %. The mean time for the CCE from the time of LSG was 10 (3-24) months. **Conclusions:** The overall incidence of cholecystectomy after Laparoscopic Sleeve Gastrectomy in Lebanon is 7.9%. As such, we do not recommend prophylactic cholecystectomy and do not feel that routine screening ultrasounds are a necessary part of the preoperative workup.

A6118

Extensive Portal Vein Thrombosis following Vertical Sleeve Gastrectomy

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Background: Laparoscopic sleeve gastrectomy is increasingly becoming a more popular option for patients seeking weight loss surgery. It is a relatively new bariatric procedure that is gaining popularity as a standalone operation. Short and long-term complications of this procedure are not well defined. As more of this procedure is performed across the nation, complications that were previously unknown are becoming overt. We describe one of such complications. We are presenting a case of a morbidly obese patient who received appropriate DVT prophylaxis who subsequently developed extensive portal vein thrombosis.
Methods: We report a 44 year old female with a BMI of 43 who underwent an uneventful laparoscopic sleeve gastrectomy. Patient received appropriate DVT prophylaxis (heparin 5000 units subcutaneous) prior to start of surgery and Q 8 hours during her hospital stay along with bilateral compression sequential stockings.The patient presented on post operative day #13, complaining of right sided back and abdominal pain. Clinically patient was hemodynamically stable. Abdominal exam reveals moderate degree of tenderness in the right upper quadrant.
Results: Our patient did not have a past medical history of thrombophilia. She also did not have a known family history of hypercoagulability. Obesity and surgery were her initial known personal risk factors. Her initial abdominal CT (A) showed portal vein thrombosis. Pt was managed with LMWH and warfarin and subsequently discharged home.Patient re-presented on discharge day #3 with worsening abdominal pain and increased tenderness. Following abdominal CT showed progression of portal vein thrombosis, mesenteric vein thrombosis, splenic vein thrombosis, and splenomegaly. Hypercoagulable workup showed HIT positivity, Protein C and S deficiencies, and positive anticardiolipin antibody. Her anticoagulation treatment was then changed to argatroban until a therapeutic level of INR was achieved with warfarin. She was hospitalized and monitored closely, clinically improved, advanced her diet as tolerated, and she was discharged in stable condition.
Conclusions: Portal vein thromobosis is a rare documented complication following laparoscopic vertical sleeve gastrectomy. In the case presented, patient had underlying compounded risk factors predisposing her to abnormal clot formation. In addition to Protein C and S deficiencies and positive anticardiolipin antibody level, patient developed HIT.Bariatric patients routinely received DVT prophylactic therapy prior to surgery in combination with sequential compression stockings in the peri-operative period. (1). Patients who have bariatric surgery are at increased risk of developing portal vein thrombosis. These patients require aggressive preoperative and postoperative prophylactic management against DVT. Furthermore, antiphospholipid syndrome and Protein C/S deficiency are prevalent in the general population. Therefore, morbidly obese patients should routinely be screened for these disorders.

A6119

Is Helicobacter Pylori associated with an increased complication rate after sleeve gastrectomy?

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Background: Few studies have reported the prevalence and consequences of infection with Helicobacter Pylori (H. Pylori) among obese patients undergoing sleeve gastrectomy. As sleeve gastrectomy continue to increase among bariatric procedures in obese population, it is important to determine if H. Pylori infection could increase complication and therefore indicate that preoperative screening and treatment is essential. This study will review whether

infection with H. Pylori based on the microscopic identification within the gastric specimen has any association with post-operative leaks. We will also examine whether there is any difference in outcome related to post-operative changes in follow-up excess weight loss (EWL).
Methods: In this retrospective study, we reviewed the pathology reports of 409 patients who underwent sleeve gastrectomy between 2008 and 2014 at our institution. Data examined also included the preoperative BMI, comorbidities, operative time, length of stay at hospital, post-operative complications and EWL in the follow up
Results: The total number of patients included in the study was 409. All patients underwent a minimally invasive sleeve gastrectomy (either laparoscopic or robotic assisted). In 68 of 409 patients (16.6%), H. Pylori was positive in the specimen. No complications were registered in the positive H. Pylori group. There were two post-operative complications which required an intervention in the H. Pylori negative group.
Conclusions: In our study, the prevalence of H. Pylori infection among sleeve gastrectomy patient was 16.6% H. Pylori is not associated with an increased incidence of leak after sleeve gastrectomy.In our experience, preoperative screening of H. Pylori is not routinely recommended.

A6120

Is Bariatric Surgery is a safe procedure in patients over 55 years old?

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Background: Controversy exists regarding the effectiveness and safety of laparoscopic bariatric procedures in elderly patients. It has been already published that laparoscopic Roux-en-y gastric bypass should not be denied bariatric surgery for the age alone. We evaluated our outcomes of minimally invasive bariatric surgery in patients≥ 55 years.
Methods: A total of 609 consecutive patients underwent a minimally invasive sleeve gastrectomy or a Roux-en-Y gastric bypass surgery from January 2008 to January 2014. 77 patients were ≥ 55 years old. Another subgroup was established, out of 77 patients, 35 patients were ≥ 60 years old and only 10 patients were ≥65 years old. Statistical analysis was performed comparing patients divided in two groups: group < 55 years comprised 532 patients with a mean age (±SD) of 38.93 ± 8.07 years: group ≥ 55 comprised 77 patients with a mean age (±SD) of 60.36 ± 4.06 years. Mean preoperative body mass index was 49.21 ± 7.62 and 49.42 ± 8.36 respectively. Early morbidity (30 days) and outcomes at 6, 12 and 24 months follow-up were evaluated.
Results: Significant differences were found regarding preoperative comorbidities comparing even patients <55 years old versus patients ≥55 years old. Data is summarized in table 1. A leak and 2 conversions to open surgery were registered in the <55 years group, however no significant differences were found regarding morbidity, complications, conversions to open and mortality. The mean length of stay in the <55 group was 2.8 ± 3.2 days versus the ≥ 55 group was 2.87 ± 0.95, with no significant differences. The mean excess weight loss at 6 months follow up was 43.1% ± 0.19 versus 55.7% ± 0.18 respectively. The mean excess weight loss at 12 months follow up was 50.3% ± 0.21 versus 55.5% ± 0.23 respectively. No significant differences were found regarding EWL at 6 months and 12 months follow-up.
Conclusions: Bariatric surgery is a feasible, safe and efficient procedure for patients with higher risk regarding comorbities and that achieves outcomes and complications rates comparable to the younger population.

A6121

A Comparative study of with and without staple line imbrication suture in sleeve gastrectomy

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Background: Sleeve gastrectomy is a commonly done bariatric surgical procedure. There are many variations in surgical technique. Staple line imbrication is commonly performed with a goal to reduce leak but adding more operative time to the procedure without evidence that this practice reduces leaks. The aim of current study is to compare the outcomes with and without using suture line imbrication in sleeve gastrectomy.
Methods: Retrospective data of consecutive cases from a single institution from January

2013 to March 2014 was analyzed. The surgical technique in the staple line imbricating group included gastric sleeve done over 40F bougie starting 5 cm proximal to gastric antrum leaving a small cuff of gastric fundus close to gastroesophageal junction. The entire staple line was imbricated with absorbable suture over 38F bougie incorporating greater omentum. Leak test was done with air insufflation. Hiatal Hernia was actively looked for and repaired. In the group without staple line imbrication, sleeve was done over 38F bougie and tacking suture incorporating omentum was done at staple line crossing approximately at 4 points. The data points included demography, operative time and complications.
Results: There were total of 248 patients, 124 each in staple line imbrication and nonimbrication group. There were 98 and 102 females, BMI of 43.76 and 42.06 age 44.36 and 44.96 years respectively in imbrication and nonimbrication groups. The operative time was 60.62 and 45.17 minutes respectively in imbricating and nonimbricating groups which is statistically significant ($p < 0.05$). In the imbricating group there were 24 (20.14%) and nonimbricating group 34 (27.4%) hiatal hernia repairs. There were total of 3 complications (2.4%) in imbricating group (1 leak and 2 strictures and one reoperation due to perforation from dilation requiring conversion to gastric bypass) and 1 complication (0.8%) (Cholecystitis) in the nonimbrication group. There were no mortalities in either group.
Conclusions: Staple line imbrication doesn't prevent leaks and there is more strictures and longer operative time compared to no imbrication of staple line.

A6122
Sleeve Gastrectomy with Jejunal Bypass. Excess Weight Loss after 10 years of follow up
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Background: In 2004 a new restrictive and more physiological surgical technique was created, the Sleeve Gastrectomy with Jejunal Bypass (SGJB). The objective is to present the 10 years results of SGJB as a surgical technique for the treatment of morbid obesity.
Methods: Prospective case series. 15 patients underwent a SGJB in the year 2004 at DIPRECA Hospital, in Santiago, Chile. SGJB consists in creating a gastric tube preserving pylorous, sectioning of jejunum 20 cm distal to the Treitz angle and then performing a jejunum-ileal anastomosis 250-300 cm. Percentage of excess weight loss (%EWL) is reported.
Results: Mean age of 42.6 (27-61) years and 67.1% female. Mean preoperative weight and BMI was 108.3+20.6 kg (84-150) and 40.5+6.3 kg/m2 (35.3-57-8) respectively. 76.3% of cases were laparoscopic; the conversion rate was 4.1%. Postoperative stay was 4.4+1.7 days. Main comorbidities were Dyslipidemia 43.5%, Hypertension 37.7% and type 2 diabetes 15.9%. EWL% at 6, 12, 24, 36, 48, 60, 72 and 84 months was 86.7, 97.2, 92.4, 84.2, 79.7, 77.1, 74.1, 84.2% respectively. Surgical morbidity was 8.4% and mortality 0.6%. Complete remission of Type 2 Diabetes was achieved in 81.5% (31/38) and partial remission in 18.5% (7/38). Dyslipidemia shows a 95% of complete remission. High blood pressure had a 66.6% of resolution and 26.7% of improvement. No dumping, anemia, malabsortion syndrome or bacterial overgrowth was observed.
Conclusions: SGJB is a safe and effective surgical technique for the treatment of morbid obesity and resolution of its comorbidities.

A6123
Three years experience and 102 patients operated on laparoscopic bariatric surgery in the city of Arica, Chile.
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Clinica Arica[1]

Background: Laparoscopic bariatric surgery has recently developed in the Chile's northest city, Arica. More than 100 surgeries have been performed in our center. The objective is to present the experience of bariatric surgery in Arica, reporting % excess of weight loss and postoperative evolution.
Methods: A prospective database of all patients operated on laparoscopic bariatric surgery at Clinica Arica, between January 2011 and march 2014, was analyzed. Mean of all variables are reported.
Results: A total of 102 patients with a mean age

of 35.7 (19-63) years, 78.4% women. Preoperative weight was 100.8 kg and BMI of 38 kg/m2 (30.3-49.2). Sleeve gastrectomy and Sleeve gastrectomy with Jejunal Bypass were the surgical techniques used. In 10 patients (9.8%) a cholecistectomy was performed simultaneously. Postoperative stay was 2.5 days. Main comorbidities were insulin resistance 62.7%, dyslipidemia 48%, fatty liver 41.2%, joints pain 18.6%, hypertension 12.7%, type 2 diabetes mellitus 6.9% and prediabetes 5.9%. 100% of patients achieved more than 50% of EWL. BMI and %EWL at 3 – 6 – 12 – 18 – 24 and 36 months was 31 – 27.6 – 25.7 – 26.2 – 25.3 y 24 kg/m2 and 57.7 – 87.9 – 100 – 95.7 – 107.2 y 113.1% respectively. The mean follow up was 15.8 months and this was 88.7 – 79.5 – 88 – 68.2 – 47.8 y 57.1% at 3 – 6 – 12 – 18 – 24 and 36 months. One patient presented self-limited gastrointestinal bleeding, and there was no mortality.
Conclusions: We present the largest cohort of patients operated on laparoscopic bariatric surgery in Arica city (Chile) with excellent results in weight loss, acceptable follow-up and morbidity.

A6124
Post Bariatric Cholecystectomy
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Background: Cholelithiasis is a common disorder in Chilean population. It can be observed in patients post bariatric surgery, with reported incidence between 30 and 52,8% with multifactorial etiology, assumes that an associated factor is the rapid weight loss in the first 12 months post surgery. This study aim to assess the prevalence post bariatric cholecystectomy in patients underwent bariatric surgery at DIPRECA Hospital in Santiago, Chile.
Methods: Retrospective cohort of the electronic hospital discharges database, of patients underwent bariatric surgery and laparoscopic cholecystectomy at DIPRECA Hospital, between January 2010 and July 2013. A correlation between the different bariatric surgical techniques (Sleeve Gastrectomy, Sleeve Gastrectomy with Jejunal Bypass and Roux en Y Gastric Bypass) and laparoscopic cholecystectomy was performed. In patients who went both surgeries, we assessed wether cholecistectomy was performed before,during or after bariatric surgery.
Results: 885 who underwent bariatric surgery between january 2010 and July 2013 were included. 8% of cholelithaisis presented as a finding in the preoperative study, undergoing cholecystectomy in the same procedure. 0,5% had a history of cholecistectomy. 810 patients presented without gallstones disease, confirmed by abdominal ultrasound (91,5%) prior to surgery. Of this patients, 130 underwent laparoscopic cholecistectomy after bariatric surgery (16%) in the same timeframe.
Conclusions: The incidence of post bariatric cholecystectomy in this sample is less than the incidence observed in other series with similar characteristics, however this may be due to underdiagnosis of gallstones disease or the patiens were resolved in other surgical centers.

A6125
Incidentally Finding Gastrointestinal Stromal Tumors in Patients Undergoing Laparoscopic Sleeve Gastrectomy: A Chart Review from a High-Volume Bariatric Center.
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Montefiore[1]

Background: The incidence of finding unexpected pathology during bariatric surgery has been estimated to be 2%, with 0.8% being attributable to gastrointestinal stromal tumors, or GISTs1. Currently, there is a lack of information on possible risk factors or unique histological attributes of GISTs in the bariatric population. Furthermore, the efficacy of the standard pre-operative abdominal sonogram in identifying these tumors has not been explored. In an attempt to answer these questions we underwent a retrospective chart review of patients undergoing laparoscopic sleeve gastrectomy for bariatric indications at Montefiore Medical Center who were found to have GISTs in the post-operative period.
Methods: From January 1st, 2009 to December 31st, 2013, all patients who underwent a laparoscopic sleeve gastrectomy for the treatment of obesity were included in this investigation. All patients met the criteria defined by the NIH consensus statement of 19912. All procedures were done by three surgeons (DC,

JC, and PV) at the Montefiore Medical Center. A retrospective chart review was performed to determine the incidence of gastrointestinal stromal tumors in our study population. For patient's with GIST on pathology, results of their pre-operative abdominal sonogram, demographic data, past medical history, medication lists, hospital stay, complications, and follow up were reviewed. **Results:** A total of 8 (1.1%) patients were found to have GISTs on pathology out of a total 721 patients. The majority of the GISTs were spindle type, low-grade and very-low risk, and all were benign. The average size of the tumor was 0.76 cm and all were below 2 cm. There were no post-operative complications and average hospital stay was 4 days. Two of the 8 patients required follow up surveillance with upper endoscopy, which remained negative for malignancy. Only 1 patient had a personal history of cancer (carcinoid, lung), and one patient had a family history of cancer (mother, breast). Fifty-percent were on pre-operative PPI therapy. One patient had a history of alcohol abuse and was sober for approximately 10 years at the time of surgery. Four patients had a history of smoking cigarettes although none were actively smoking at the time of surgery. Only one patient presented with pre-operative abdominal symptoms of pain and heaviness; all others were asymptomatic at time of presentation. Finally, all pre-operative abdominal sonograms were negative for any intra-abdominal pathology. **Conclusions:** In our patient population, there were no patterns in pre-operative PPI, alcohol, or tobacco use unique to patients who were found to have GIST following surgery. These patients also did not present with unique abdominal symptoms attributable to GIST in the pre-operative setting. Using both the Miettinen and Fletcher's criteria for predicting the malignant potential of GISTs, which takes into account tumor size and mitotic rate, all tumors were deemed benign. Lastly, a pre-operative abdominal sonogram is not effective in identifying GISTs, most likely due to their extra-luminal nature and their small size.

A6126

Long-term nutritional deficiencies after Sleeve Gastrectomy

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Background: Sleeve Gastrectomy (SG) has become a predominant bariatric procedure throughout the world. The long-term nutritional impact of this procedure is however unknown. **Methods:** All patients who had a laparoscopic SG with a minimal follow-up of two years (n=226) in our Institution, were included in this study. Data were obtained from our prospectively maintained electronic database and are reported as a Mean ± Standard Deviation, comparing the prevalence of deficiencies before versus after surgery. Nutritional evaluation and supplementation was done using standardized protocols. **Results:** The mean age of the patients was 48±11 years, with an initial BMI of 48±10kg/m2. Excess weight loss was 53% at 12m, 50% at 24m, 50% at 36 months and 47% at 48 months. Mean follow-up was 38±15 months. At that time, 67% of patients were taking multivitamin supplementation, iron in 14 %, calcium in 30%, Vitamin D in 32% and Vitamin A in 7%. Albumin deficiency (<35g/l) was present in 0.7% before versus 2.9% after surgery (p=0.1); vitamin D deficiency (<70mmol/l) in 63% vs. 24% (p<0.0001), Calcium (<2.15mmol/l) in 3% vs. 3% (NS); hyperparathyroidism (PTH>70ng/l) in 8.2% vs 3.4% (p=0.05); anemia in 23 vs. 12% (p<0.001); Ferritin (<30ng/ml) in 11% vs. 22% (p<0.001), vitamin B12 (<145pmol/l) in 4% vs. 4% (NS), vitamin A (<1.4µmol/l) in 9% vs 4% (p=0.03).
Conclusions: Nutritional deficiencies are frequent in morbidly obese populations, both before and after surgery. Long-term nutritional follow-up is recommended to prevent these deficiencies.

A6127

Is laparoscopic sleeve gastrectomy a safe option in elderly patients?

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IUCPQ[1]

Background: Elderly patients are sometimes denied access to bariatric surgery due to perceived increased risks and questionable benefits. The goal of this study was to assess the actual risks and benefits of Sleeve

Gastrecomy (SG) in patients aged 60 and above
Methods: All patients >60 years old who underwent a primary laparoscopic SG between 2008 and 2014 in our Institution (n=148) were selected from our prospective electronic database. Primary outcomes were 90-days complications, readmission and long-term mortality.
Results: The mean age of the patients was 64.0±2.5 years (range 60-72 years). Initial BMI was 47±7kg/m2. A mean of 6 associated comorbidities were present, including T2DM (77%), hypertension (85%) and OSA (80%). Operative time was 102±38 minutes and one patient was converted to open surgery (0.7%). There was no 90-days mortality. Long-term mortality occurred in 4 patients (cancer, n=1; pneumonia, n=1; arrythmia, n=1; unknown origin, n=1) at a mean of 18 months. Major complications occurred in 4% (gastric leak (1), pneumonia (2), cardiac (2), transient kidney failure (1). Readmission was required in 9% ((food intolerance (3), colitis (1), cholecystitis (1), bowel obstruction (2), kidney stones (1) and revisional surgery for insufficient weight loss (6). Excess weight loss at 1, 2, 3 and 4 years was 50±14%; 46±19, 51±19% and 54%±16%, respectively. T2DM was cured in 48% of the patients and improved in an additional 50%. Fasting glucose decreased from 7.6±2.8 to 6.3 ±2.1 and HbA1C went from 6.8±1.3 to 6.1±1%. The percentage of patients with an HBA1C>7% decreased from 44% before surgery to 19% after surgery.
Conclusions: Laparoscopic SG in elderly patients is safe, with a low 90-days morbidity and mortality rate. Long term mortality (2.7% at 18 months) could be increased compared to the general bariatric population.

A6200
A Qualitative Exploration into Diet and Exercise for Bariatric Surgery Success (DEBSS): From a Focus Group Perspective
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Background: Bariatric surgery is effective for enabling short-term weight loss in morbid (BMI ≥ 40) and super obese (BMI ≥ 50) populations by limiting food intake and/or deceasing nutrient absorption, but the resources for long-term weight management after surgery are limited and do not emphasize the role of physical activity. Patients who have had bariatric surgery can benefit from diet management and regular physical activity to manage weight and gain additional health benefits, such as decreased risk of CVD and enhanced mood. However, there are no post-surgery programs currently in place to combat the psychosocial issues and risk factors associated with regaining weight. Addressing psychological factors in weight management after bariatric surgery can reduce risk of psychological distress and help patients deal with barriers to healthy diet and exercise. The purpose of this study was to explore the attitudes, perceptions, and experiences related to pre- and post- bariatric surgery health behaviors using data gathered through focus groups with bariatric surgery patients.
Methods: A total of 18 patients participated in the semi-structured, proctor-guided focus groups: 7 pre-surgery patients and 11 post-surgery patients.
Results: The results from these groups revealed common themes shared among all participants for success after surgery. These themes include the need for sustained support from family, friends, and practitioners, ongoing individualized education in diet and physical activity behavior change, as well as instruction in adopting and adhering to other psychosocial behavior change strategies (i.e., goal setting, coping skills, problem solving, etc.).
Conclusions: The information gathered from the focus groups is intended to inform and foster future research including the development of post-surgery programs that promote and cultivate long-term exercise, healthy eating, and good mental health in post-bariatric patients.

A6201
Detecting Depression in Hispanic and African American Women Undergoing Bariatric Surgery
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*** Presentation under consideration for the John Halverson Young Investigator Award**

Background: Depression is more common among persons with chronic conditions. Obesityhas reached epidemic proportions and minority groups have a higher prevalence of obesity.Depression diagnosed by a psychologist and through the use of tools developed to identifydepressive symptoms prior to bariatric surgery canlead to needed treatment and success in thepostoperative period. **Methods:** Objective--To determine if cases of depression are better identified with concurrent use of BeckDepression Inventory (BDI-II) and psychological evaluation.Setting—Inner city, university hospital in MidwestMethods--Retrospective chart analysis of African American and Hispanic female patients (n=40)and their self- reported depression scoring from March to December 2012. **Results:** Results—Subjects were Hispanic (n=14, 39%) and African American (n=26, 61%) womenranging in age from 28-64 years old, mean age of 43.6 years old. 52% of subjects thatunderwent bariatric surgery during defined time completed self-reported Beck Depression15 Inventory–II pre-operatively and met inclusion criteria. 90% of those such patients hadpsychological evaluation at university hospital for comparison of findings. Thirty-eight out of44 subjects who completed BDI-II scored minimal to mild depression, with 4 subjects scoringmoderate depression and 2 subjects scoring severe depression. Psychological evaluations onthese subjects confirmed findings of BDI-II and further identified psychological needs in certain subjects. **Conclusions:** BDI-II assists providers in determining current depression status. Full psychological evaluation is needed to address complete risk assessment prior to bariatric surgery.

A6202

Complicated Peptic Ulcer Disease after Gastric Bypass: Rare complication and still diagnostic dilemma

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Background: Complicated marginal ulcers after gastric bypass is a well-established risk and can present with hemorrhage or perforation. However, complicated PUD not related to marginal ulcer still can occur after gastric bypass in the remnant stomach and duodenum and can be challenging to diagnose and treat. **Methods:** A retrospective review of recent 7 cases in 5 patients from two institutions was performed. Also, a literature search using PubMed was included other cases of complicated PUD not related to marginal ulcers. **Results:** A total of 34 cases of complicated PUD were identified in 32 patients from 1979 to 2014. The average age was 43.5 years of age at occurrence with a range of 24- 63 years of age. 38.7% of patients were male and presented an average 53 months from surgery (range 5 days-204 months). Of the reported cases 26/34 (76.4%) presented with perforation, 6/34 (17.6%) presented with hemorrhage, and 2/34 (5.8%) presented with both perforation and hemorrhage. A common theme in these patients seemed to be abdominal pain of unknown origin or a herald bleed which preceded the presentation of complicated PUD. For perforations PUD, emergent operative management with repair with or without omentopexy is generally required, seems to be the preferred approach (24/26 cases). This procedure can be performed laparoscopically. Repeated perforation from complicated PUD was seen in at least two males in the series. 5/34 cases were treated with emergent remnant gastrectomies, mostly for hemorrhage, including the two patients presenting with both hemorrhage and perforation. However, other options for hemorrhage control in bleeding ulcers include laparoscopic transgastric endoscopy with intervention (1/6) interventional radiology (1/6) or duodenotomy and suture ligation (1/6). However, elective remnant gastrectomy may be an option for repeated events of complicated PUD or intractable disease.
Conclusions: Although first described in 1979, complicated PUD remains a rare complication after RYGB and continues to be a difficult diagnosis. Efficient control of hemorrhage and contamination remain the tenets emergent surgical intervention in these patients. Modification of risk factors including H. pylori treatment and NSAID/smoking cessation should be a mainstay in long-term treatment of complicated PUD.

A6203

Bariatric surgery evaluation predictors and their functional outcome

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Mid LA Surgical Specialists[1] Mid Louisiana Surgical Specialist[2] Louisiana State University Alexandria[3]

Background: A ten-year review of bariatric surgery literature demonstrated varied results for the predictive value of psychological assessments and bariatric surgery success (>50% EBWL). Results of psychological scores on bariatric patient assessments differed when psychological variables were viewed separately. In order to assess psychological predictions and their interaction effects, the Allied Health Sciences Section Ad Hoc Behavioral Health Committee (AHSSAHBHC) for Pre-Surgical psychological assessment of bariatric surgery candidates presented specific categories for assessment. Our objective was to develop and evaluate predictive ability of psychological tests to assess each AHSSAHBHC category: behavioral, cognitive/emotional, developmental, current life situation, motivation, and expectation factors.
Methods: This study documented weight/BMI and psychological test results on 155 patients in preoperative evaluation. Weight/BMI results were recorded upon each successive post operation follow-up. Initial analysis of patients involved a regression analysis predicting > 50%EBWL. Tests included: Bariatric Structured interview, the Alcohol Use Disorders Identification Test (AUDIT), Beck Depression Inventory-II, WAIS-IV Coding Subtest, Obsessive Compulsive Disorder Screening Questions, Three Factor Eating Questionnaire, Eating Attitudes Test-26, Patient Health Questionnaire, Shipley-2, and WRAT-4Reading Recognition subtest, Quality of Life inventory, patient's desired weight, and pain scales. The most significant variable was used with next 50 bariatric surgical patients to validate its predictive value.
Results: A total of 155 patients underwent weight loss surgery at Christus St. Francis Cabrini Hospital in Alexandria, Louisiana (mean age 47, average education 12 years, 71% females, 93% Caucasian, average weight 275 lbs, height and mean body mass index 43.88). A regression analysis revealed the patients' post surgical desired weight, the coding subtest of the WAIS-4 (a measure of cognitive efficiency), and the AUDIT were most significant in predicting maximal excess body weight loss upon the first two post surgical visits. The patients' specific stated goal for post-surgical desired weight was the best predictor of significant trend toward 50%EBWL, followed by cognitive efficiency, and substance abuse at the second and subsequent visits. The patients' weight loss goal plus pain scores were the best predictors of weight loss from the pre surgical visit. The next fifty patients who completed bariatric surgery were analyzed by the same psychological tests for prediction of >50% excess weight loss. Again, the patients' preoperative stated post-surgical desired weight was the best predictor of significant trend toward >50%EBWL.
Conclusions: Patients with specific stated desired weight had significant trend toward > 50%EBWL from their preoperative evaluation and each follow-up assessment. Absence of pain was predictive of significant trend toward %50 EBWL preoperatively. The addition of a cognitive efficiency measure (Coding subtest) and positive substance abuse significantly added to predictive values. A positive psychological history including any psychiatric/psychological care /use of psychoactive medication was negatively correlated but added nothing significant to predictive value. The QOL and developmental/trauma factors did not add predictive value. The desired weight goal is being validated on new sample and appears as most significant predictor, >50%EBWL.

A6204
A Pilot Study: Role of Accelerometers in Promoting Physical Activity After Bariatric Surgery

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Background: Physical activity is one of the strongest predictors of long-term weight maintenance after bariatric surgery. Unfortunately, many patients fail to achieve the recommended levels of physical activity following bariatric surgery. Studies have demonstrated accelerometers' reliability and accuracy in obtaining physical activity data among a wide variety of ages, weights, and

fitness levels. Additionally, they have been promoted as a tool for increasing physical activity.The aim of this study is to assess the role of accelerometers in promoting physical activity among patients who have undergone bariatric surgery.
Methods: Patients who underwent a laparoscopic bariatric surgery at Mayo Clinic in Rochester, MN, between November 2011 and March 2012, were recruited at their 3-month post-bariatric surgery visit. Study subjects were randomized to accelerometer use (Treatment) or no accelerometer use (Standard Care) for 12 weeks.Deidentified accelerometers were provided at no cost. Activity captured by accelerometer was analyzed at 30-, 60-, and 90-days post-enrollment, coinciding with completion of the International Physical Activity Questionnaire-Short Form (IPAQ-SF), a validated tool for capturing self-reported physical activity. Accelerometer wear time of ≥ 8 hours/day was required for inclusion in analyses.
Results: 30 post-laparoscopic bariatric surgery patients enrolled in the study, 16 randomized to Treatment, 14 to Standard Care (Table 1). IPAQ reported increased walking time of 272.1 minutes per week for Treatment group and a reduction in walking time of 10.6 minutes per week for the Standard Care group (p=0.38). Standard Care and Treatment groups lost 9.7 kg and 11.3 kg, (p=0.39) respectively. Average daily accelerometer wear time trended with weight loss (Figure 1) but did not reach statistical significance. Treatment: 13 patients downloaded the accelerometer software; average minutes spent in at least moderate activity by individuals with usable data (n=22 out of a total 39 study points) at 30-, 60-, and 90-days post-enrollment was 53.3, 46.6, and 64.7 minutes per day, respectively. 15 patients returned for their 6-month post-surgery visit (90-days post-enrollment). Self-report data (n=13) showed an increase in total activity and moderate activity of 411.1 and 171.2 minutes per week, respectively, over enrollment levels. Standard Care: 11 patients returned for their 6-month post-surgery visit. Self-report data (n=10) demonstrated an increase in total activity and moderate activity of 323 minutes and 186.7 minutes, respectively, over enrollment levels. These levels were not statistically different from the Treatment group.
Conclusions: Our study shows that among patients who underwent bariatric surgery, those randomized to accelerometer use reported higher total physical activity as determined by IPAQ, compared to non-users. Accelerometer users also trended towards greater weight loss although it did not reach statistical significance. However, our study also shows limitations to the implementation of accelerometer use in accurately assessing physical activity in this population. The wear times among treatment subjects fell well below the recommended levels to accurately capture physical activity. Recognizing the importance of regular physical activity in weight maintenance, additional studies are warranted to further explore this field.

A6205

Dietary Behavior and Weight Reduction in the first year following Laparoscopic Adjustable Silicon Gastric Banding (LASGB) amongst Morbidly Obese Patients in Saudi Arabia

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Background: Obesity is one of the most common metabolic disorders in the cosmos, including Saudi Arabia and is increasing at an alarming pace. LASGB induces weight loss by creating a small gastric pouch with an adjustable stoma, resulting in the limitation of food intake. The compliance of the patients to dietary modifications is requested for the best outcome. Healthy food choices and behavioral changes are necessary to achieve weight loss. This study aims to investigate dietary behavior, postoperative side effects and subjective assessment of surgery outcome amongst patients in the first year.
Methods: One hundred twenty seven obese patient surveys was conducted to investigate the dietary behavior and postoperative side effects and subjective surgery outcome amongst patients in their first year following laparoscopic gastric banding at Bariatric center. These factors were linked to self reported weight at 3, 6, 9 and 12 months after surgery, postoperative side effects, and subjective outcome of surgery.
Results: Thirty-seven males BMI 50.28±11.98, 90 females BMI 43.75±9.76 kg/m2, who had undergone LASGB in the previous year. There was a greater reduction in the BMI with increase of the length of time since surgery, by 23% in females and 25% percent in males after nine months and increased % reduction in BMI by

(26%) at one year. The poor and intermediate dietary behavior groups experienced significantly more nausea and vomiting (P= 0.044, P = 0.028) than the healthier dietary behavior group. The poor dietary behavior group experienced significantly (P<0.05) poorer self assessment of surgery outcome (specifically increased vomiting and reduced weight loss) than the healthy dietary behavior group. Greater reduction in percentage BMI (29%) with improved dietary behavior that achieved significance beyond 6 months post surgery. **Conclusions:** For LAGB to be successful significant changes in dietary behavior are needed. Improved dietary behavior was associated with improvements in postoperative side effects, subjective self assessment of surgery outcome and enhanced reduction in BMI. Pre-and postoperative nutritional programs are required to educate patients on changes needed in dietary behavior and eating patterns for successful weight loss and to ensure therapeutic success.

A6206

Effect of Laparoscopic Gastric Bypass (LGB) on severity of depression

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Background: With the rising prevalence of obesity and increasing utilization of surgical interventions, there is a great need to study how co-morbidities can influence both the clinical presentation of patients seeking bariatric surgery and their outcomes. One such co-morbidity, depression, is related to decreased quality of life, increased healthcare costs, and potentially to weight gain recidivism. The data regarding how bariatric surgery may affect depression is conflicting and limited. We therefore proposed a study to track depression in patients treated with LGB using the Beck Depression Inventory-II (BDI-II) and to assess a correlation, if any, with weight loss.
Methods: This was a prospective cohort study. Every patient at our tertiary care center receives a BDI-II prior to bariatric surgery as part of the standard of care pre-surgical psychological evaluation. All LGB patients returning for annual follow-up appointments at our center were enrolled during the 5-month study period. Exclusionary criteria included the presence of a severe psychiatric disorder, age <18 years, and pre-operative BMI of <35. A BDI-II was administered. These data were compared to the pre-operative BDI-II utilizing a paired t-test (α=0.05). A Pearson correlation was performed to assess the relationship of degree of weight loss with depressive symptoms.
Results: The sample included 17 adult patients (mean age 45±4.0; 14 women, 3 men). There was a significant change in the BDI-II score from the preoperative mean to 1-year value, (13.2±4.6 vs. 3.1±1.5, p<0.0001). 65% of pre-operative BDI-II scores were 13 or higher, corresponding to clinically significant depressive symptoms. All post-operative BDI-II questionnaire scores were below 13 points, corresponding to minimal to no depression. Additionally, there was no correlation between weight loss and depressive symptoms (R=0.03).
Conclusions: Although limited, the preliminary results of this study suggest that depression is significantly and sustainably improved in patients following LGB. Our data add to previous studies demonstrating that a substantial proportion of bariatric surgery patients meet criteria for clinically significant depression. One year following LGB, our patients showed minimal depressive symptoms, indicating that LGB has a positive effect on depressive symptoms independent of weight loss. The absence of a correlation between BDI scores and BMI suggests a more complex biopsychosocial mechanism for improvement in depression. A 3-arm prospective study involving obese patients seeking non-surgical treatment for weight loss, LGB, and gastric sleeve patients is currently in progress to further assess these findings.

A6207

Social and Interpersonal Relationships Before and After Bariatric Surgery

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Background: Social discrimination, as well as health issues and reduction in functional capacity, may adversely affect social life and interpersonal relationships for individuals with severe obesity. The purpose of this study was to examine quality of life (QoL) as it relates to

social and interpersonal relationships of the severely obese before and after bariatric surgery.
Methods: The study population included 104 bariatric surgical candidates and a group of lean controls. Quality of life (QoL) was assessed by the Impact of Weight on Quality of Life (IWQOL) questionnaire which consists of 8 QoL domains, including social/interpersonal relationships. QoL social and interpersonal relationship scores were examined with regard to age, BMI, gender, and other IWQOL subscales (health, mobility, self-esteem, sex, work, activities of daily living, eating) before and after bariatric surgery. **Results:** Bariatric patients scored significantly lower than lean controls on the social and interpersonal relationship QoL scale (68.2+1.7 VS. 97.7+0.7). Social and interpersonal relationship QoL scores for the severely obese were significantly and inversely correlated to BMI (p=0.01) but were positively associated with age (0.28, p=0.004). Data obtained by multiple regression analyses showed independent effects of the QoL subscales for self-esteem, work and activities of daily living on social and interpersonal relationships. One and two years post-operative, social and interpersonal relationship scores significantly (p<0.0001) improved (85.6+1.8 and 93.9+1.6, respectively), along with those of the other IWQOL scales. The improvements in social and interpersonal relationship QoL at postoperative years 1 and 2 were not associated significantly with weight loss (changes in BMI) but were strongly and independently (p<0.01) correlated to surgery-induced changes in self-esteem. **Conclusions:** Social and interpersonal relationship QoL is adversely affected by severe obesity. Bariatric surgery significantly improves social and interpersonal relationship QoL and does so in association with an increase in self-esteem.

A6208

Efficacy of a chewable multivitamin/mineral supplement in preventing vitamin deficiency in Roux en-Y gastric bypass patients: A randomized controlled clinical trial

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Background: While Roux-en Y gastric bypass (GBP) is highly effective in creating durable weight loss, vitamin and mineral deficiencies are common and can lead to significant morbidity. Nutritional guidelines have been published from the American Association of Clinical Endocrinology, the Obesity Society, and the American Society of Metabolic and Bariatric Society, but there exists little research on the relative efficacy of vitamin supplementation regimens. Our study compares the efficacy and tolerability of an investigational chewable multivitamin, formulated with optimal vitamin and mineral doses and enhanced absorption, versus the standard bariatric vitamin used at our academic center in patients undergoing GBP. **Methods:** From February 2012 to April 2013, 56 GBP patients, aged 18 to 65, were randomized to an investigational chewable multivitamin versus a standard vitamin (two Flintstones daily). Plasma levels of vitamins A, D, E, folate, thiamine, B12, ferritin, iron, PIVKA, beta-carotene, and coenzyme Q10 were measured preoperatively and 3 months postoperatively. Analysis was by intention to treat. The primary outcome was the difference in mean plasma levels between treatment groups at 3 months. Student's t-test was used to analyze differences between groups except for PIVKA where we used Wilcoxon rank sum. The secondary outcome was the palatability of the formulations. **Results:** We randomized 27 patients to the standard regimen and 29 to the investigational multivitamin. Baseline characteristics were comparable between the two arms. The majority of patients were female (89%), with a mean age of 42 and mean body mass index of 47. Plasma levels of PTH (p=0.02), vitamin D (p=0.02), thiamine (p=0.01), folate (p=0.03) and beta carotene (p=0.04) were significantly improved in the investigational multivitamin arm when compared to the standard regimen arm. (Table 1.) For the majority of vitamins and minerals assayed, those in the standard regimen arm had greater percentage of suboptimal levels than those in the chewable multivitamin arm. Patients in the chewable investigational multivitamin arm reported better initial taste (p=0.01), aftertaste (p=0.04), and satisfaction, and were more compliant than with the standard regimen. **Conclusions:** Our chewable investigational multivitamin supplement appears to be more

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effective than a standard multivitamin in reducing deficiencies and maintaining therapeutic levels of vitamins and minerals that are clinically relevant for the GBP patient. The investigational supplement was also more palatable. Additional larger studies should be conducted to confirm these findings and further refine the optimal dosing regimen.

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