PEDIATRIC WEIGHT LOSS SURGERY PATIENTS VARY BY PROCEDURE: PREOPERATIVE CHARACTERISTICS OF 402 ADOLESCENTS WITH MORBID OBESITY AT SURGICAL REVIEW CORPORATION (SRC) CENTERS OF EXCELLENCE IN BARIATRIC SURGERY

Danielle Tamburrini, DO and Gus J Slotman, MD
Department of Surgery, Inspira Health Network, Vineland, NJ

BACKGROUND: Bariatric surgery has improved the quality of life for many adolescents with morbid obesity. Pediatric and bariatric surgery organization guidelines for weight loss procedures in this age group are well established. The objective of this study was to identify preoperative demographics, weight and weight-related medical problems of adolescents undergoing bariatric operations at SRC Centers of Excellence in Bariatric Surgery (COEBS).

METHODS: With the approval of the SRC and IRB of Inspira Health Network, data from 402 adolescents in the SRC BOLD database who were preoperative for bariatric surgery at SRC COEBS between June 2001 and February 25, 2018 were analyzed retrospectively. Data included demographics, age, weight, BMI and obesity related comorbidities including Type II diabetes, hypertension (HTN), dyslipidemia, GERD, asthma, obstructive sleep apnea (OSA), obesity hypoventilation syndrome (OHS), impaired ambulation, back pain, depression, and alcohol/tobacco use. Statistical analysis consisted of continuous variables that were analyzed using ANOVA with treatment in the model. Pair-wise comparisons were performed on the least squares means of the treatments calculated from the ANOVA model. Categorical variables were examined by a general linear model with treatment and modified for binomial distribution.

RESULTS: There were 301 females (75%) and 101 males (25%) with median age 17 years (range 6 to 18). Races were 9% African American, 56% Caucasian, 13% Hispanic, 1.2% Asian, 1.5% Native American/Alaskan/Hawaiian/Pacific and 19% other (or >1 race). Procedures scheduled were laparoscopic gastric bypass (LRYGB) 142 (35%), adjustable gastric band (AGB) 152 (38%), sleeve gastrectomy (SLEEVE) 101 (25%), biliopancreatic diversion/duodenal switch 2 (0.5%) and other 5 (1.2%). Countries included USA 341 (85%), Romania 29 (7%), United Arab Emirates 14 (3.5%), Saudi Arabia 13 (3.2%), India 3 (0.8%) and

Qatar 2 (0.5%). Health insurance: Private/Government 198 (49%), Self-Pay 133 (33%), Medicaid 24 (6%), Medicare 5 (1.2%), charity 2 (0.5%) and unknown 40 (10%). Female LRYGB/SLEEVE/AGB (77/67/79%; $p<0.05$), weight (lbs) (311+-79/154+-128/274+-57; $p<0.001$) and BMI (50+-10/45+-10/45+-7; $p<0.001$) varied, but age did not (16.8+-1.6/16.6+-1.2/16.5+-1.6 years). LRYGB/SLEEVE/AGB hypertension (42/68/39%; $p<0.0001$), back pain (66/86/72%; $p<0.0001$), medicated back pain (19/3/11%; $p<0.05$), obstructive sleep apnea (66/81/81; $p<0.01$), CPAP (18/5/6%; $p<0.01$), medicated asthma (20/12/8; $p<0.05$), private insurance (74/90/84%; $p<0.05$), Caucasian (55/27/74; $p<0.001$), USA (99/45/99%; $p<0.0001$) and tobacco (2/9/2%; $p<0.05$) varied. Preoperative depression, impaired ambulation, diabetes, GERD, dyslipidemia, OHS, non-medicated asthma and alcohol use did not vary by procedure.

CONCLUSIONS: Late adolescence (16-17 years) is the dominant age for pediatric bariatric operations. Pediatric LRYGB and AGB are more commonly selected than SLEEVE, in contrast to adult bariatric surgery. AGB is the most common pediatric bariatric procedure, which may reflect preference of a reversible procedure for adolescents. BMI, weight and female sex are higher within LRYGB/AGB. Hypertension, back pain, private insurance and OSA were higher in preoperative SLEEVE in spite of lower weight/BMI. Caucasian race and USA location were lowest among preoperative SLEEVE possibly due to international influences. CPAP use and medicated asthma were highest in LRYGB. Rationales for operation choice and whether or not preoperative clinical variation by procedure influences outcomes is not clear from the data and will require further BOLD analysis.