Conversional Surgery in the Young: An MBSAQIP Analysis of 13,000 Patients

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INTRODUCTION

Metabolic and bariatric surgery remains the most effective and durable treatment for patients struggling with the physiologic and social effects of obesity.The incidence of bariatric surgery in young adults increases, which has led to an increase of patients requiring conversional procedure. 11% of metabolic and bariatric surgeries performed are revisional surgeries/conversion to a different bariatric surgery.

The primary objective of this study was to compare demographic factors and complication rates of young adults getting converted to another procedure. The secondary objective is to compare the complication rates amongst patients undergoing bariatric conversion surgery after undergoing the 2 most common index bariatric surgeries.

- **Adjustable Gastric Band (AGB) → sleeve gastrectomy (SG) vs Roux-en-Y gastric bypass (RYGB)**
- **SG → RYGB vs Single anastomosis duodenal switch (SADI-S) vs Biliopancreatic duodenal switch (BPDS)**

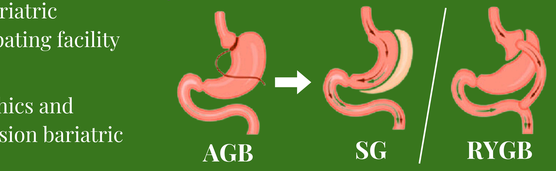
METHODOLOGY

All 13,486 patients included underwent bariatric conversion surgery at a MBSAQIP participating facility between 2020-2022.

a) Bivariate analysis compared demographics and outcomes for patients undergoing conversion bariatric surgery

b) multivariate logistic regression models were developed with inclusion of variables that reached a p value <0.1 on bivariate regression

c)Model fit was assessed using the Brier Score and receiver operating curve (ROC)





CONCLUSION

1. Most patients undergoing conversion have an index AGB or SG
2. Most common indication for conversion surgery was GERD most commonly seen in patients with Index RYGB and weight loss recidivism seen most commonly in patients with index SADI-S
3. For patients with index AGB, RYGB is associated with increased complications rate compared to SG while patients with index SG, conversion to RYGB and BPDDS was associated with increase complication rates compared to those undergoing SADI-S

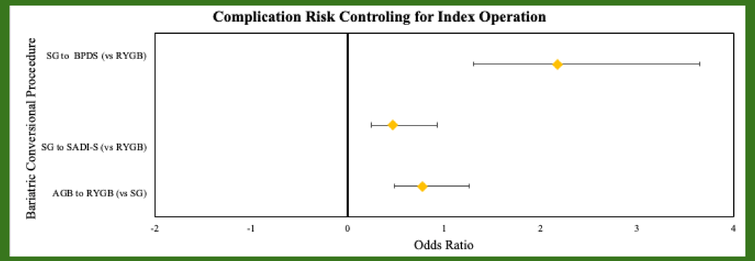
Overall, with rising rates of bariatric conversional surgery and increasing number of options available, it will become important to understand risks associates with different conversions.

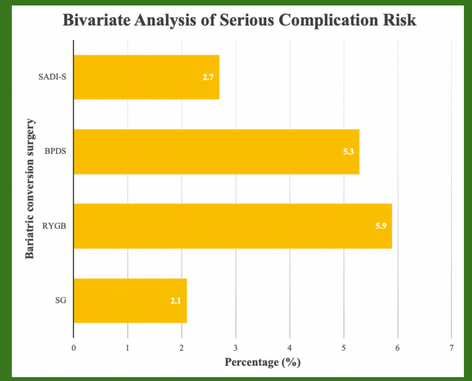
As revisional surgery can pose significant technical challenges and can carry vastly differing postoperative effects for patients, creation of consensus and decision-aids can help surgeons and multidisciplinary teams caring for patients requiring bariatric conversional surgery.

RESULTS

Preoperative Variables

Variables	Cohort (n=13486)	SG (n=2283)	RYGB (n=9812)	SADI-S (n=549)	BPD/DS (n=842)
Age	34.8±4.3	35.5±4.1	34.7±4.2	34.3±4.6	34.6±4.4
BMI (kg/m^2)	42.8±8.5	45.4±8.3	41.5±8.2	46.5±7.9	48.1±9.0
Female	12250 (90.8%)	2283 (18.6%)	9102 (92.8%)	485 (4.0%)	1948 (13.5%)
Smoker	759 (5.6%)	175 (7.7%)	505 (5.2)	35 (6.4%)	44 (5.2%)
Sleep apnea	2263 (16.8%)	432 (18.9%)	1508 (15.4)	116 (21.1%)	207 (24.6%)
Hypertension	2610 (19.4%)	518 (22.7%)	1767 (18.1)	120 (21.9%)	205 (24.4%)
GERD	7417 (55.0%)	642 (28.1%)	6349 (64.2)	162 (29.5%)	264 (31.4%)





Reason For Conversion

	Index Procedure				
Indication	Cohort	SG	RYGB	SADI-S	BPDS
Abdominal pain	45 (0.3%)	9 (0.4%)	33 (0.3%)	3 (0.6%)	0 (0.0%)
Adhesions	125 (0.9%)	43 (1.9%)	81 (0.8%)	0 (0.0%)	1 (0.1%)
Leak	30 (0.2%)	4 (0.2%)	26 (0.3%)	0 (0.0%)	0 (0.0%)
Dysphagia	266 (2.0%)	99 (4.3)	164 (1.7%)	1 (0.2%)	2 (0.2%)
Fluid, electrolyte or nutritional deficiency	17 (0.1%)	1 (0.0%)	16 (0.2%)	0 (0.0%)	0 (0.0%)
GERD	4989 (37.0%)	145 (6.4%)	4781 (48.7%)	24 (4.4%)	39 (4.6%)
Stricture or obstruction	141 (1.1%)	13 (0.6%)	126 (1.3%)	0 (0.0%)	2 (0.2%)
Inadequate weight loss	2564 (19.0%)	626 (27.4%)	1365 (13.9%)	219 (39.9%)	354 (42.0%)
Weight gain	4478 (33.2%)	1017 (44.6%)	2800 (28.5%)	273 (49.7%)	388 (46.1)
Mechanical malfunction	203 (1.5%)	112 (4.9%)	87 (0.9%)	0 (0.0%)	4 (0.5%)
Nausea or vomiting	126 (0.9%)	24 (1.1%)	99 (1.0%)	0 (0.0%)	3 (0.4%)
Patient intolerance	99 (0.7%)	67 (2.9%)	31 (0.3%)	1 (0.2%)	0 (0.0%)
Persistent comorbidities	101 (0.8%)	22 (1.0%)	61 (0.6%)	12 (2.2%)	6 (0.7%)

Complications included:

- post-operative leak
- postoperative bleed
- readmission
- reoperation
- reintervention
- cardiac events pneumonia
- sepsis
- acute kidney injury (AKI)
- deep surgical site infection (SSI)
- wound disruption
- unplanned intubation
- cerebrovascular accident (CVA)
- mortality
- length of stay after operation (LOS)

Patients with higher BMI and Albumin levels at time of conversion surgery had lower rates of complications.

GERD and failed weight loss were the most common indications for revisional bariatric surgery

supplementary data tables