



WHO GETS WHICH OPERATION? PRE-OPERATIVE CLINICAL CHARACTERISTICS OF 166,601 BOLD PATIENTS WHO UNDERWENT OPEN (ORYGB) OR LAPAROSCOPIC (LAPRYGB) GASTRIC BYPASS, ADJUSTABLE GASTRIC BAND (AGB), SLEEVE GASTRECTOMY (SLEEVE), OR DUODENAL SWITCH (DS)

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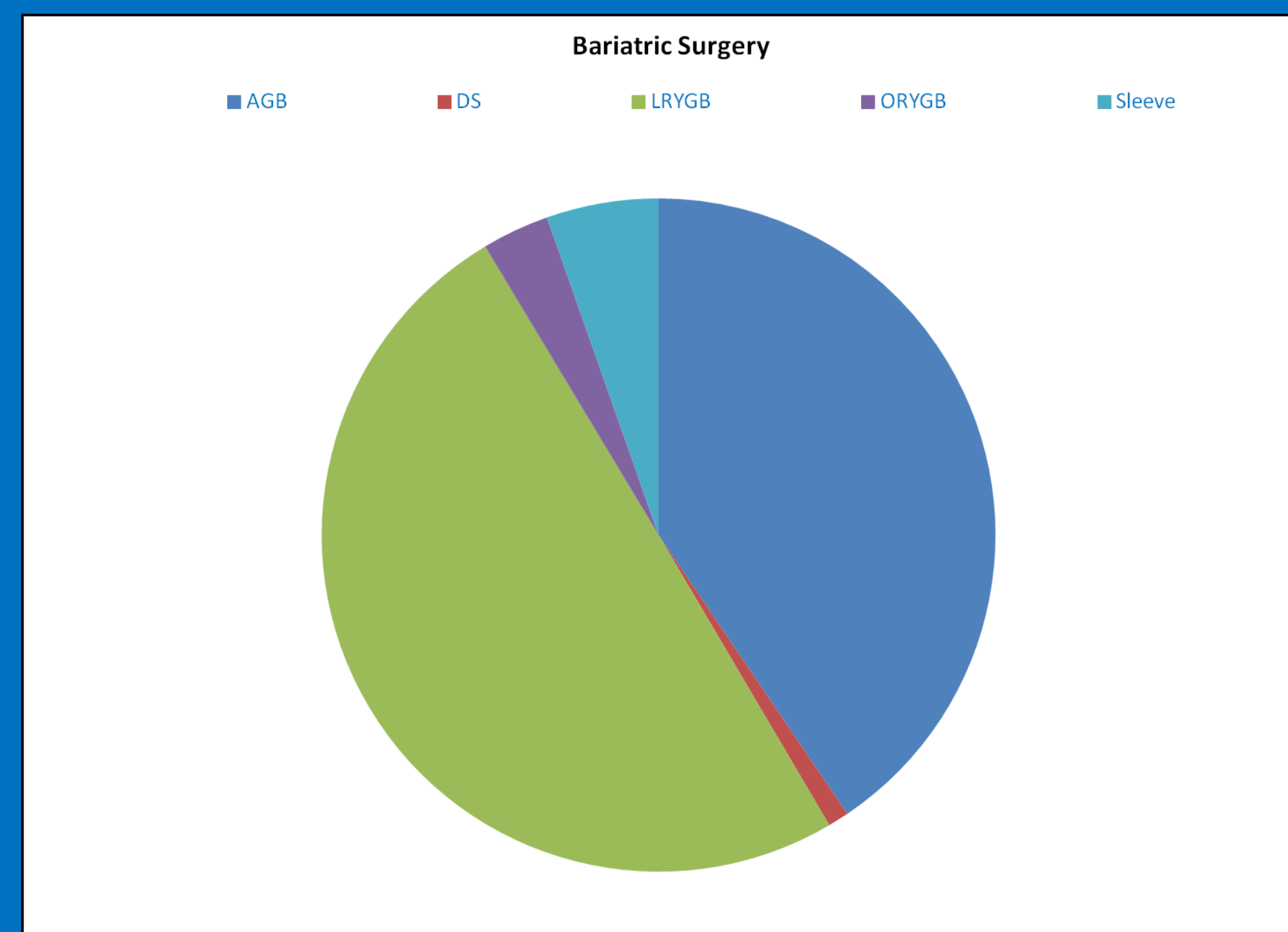
Introduction

ORYGB, LAPRYGB, AGB, SLEEVE, and DS together form the mainstay of surgical treatment for morbid obesity. Although each of these bariatric surgeries has been studied extensively, the pre-operative clinical characteristics and distribution of weight, BMI and co-morbidities of the morbidly obese patients who choose them are not established. Thus, a comprehensive direct comparison of who gets which operation is unknown.

Objective

The objective of the present study was to analyze pre-operative demographics and morbid obesity co-morbidities of patients who underwent ORYGB, LAPRYGB, AGB, SLEEVE, or DS, and to identify clinical differences between the groups of patients who chose each technique.

Results



Baseline Data

Gastrointestinal & Hepatobiliary	AGB	DS	LRYGB	ORYGB	SLEE VE
Abdominal Hernia	4.52	10.46	5.09	7.66	6.31
Abdominal Skin Pannus	4.54	20.44	7.66	8.03	8.04
Cholelithiasis	16.83	21.76	21.58	19.37	18.18
Gastroesophageal Reflux	42.44	50.75	49.74	42.29	42.98
Liver Disease	4.22	6.16	7.18	11.19	4.94
All p-values <0.01					

Employment Status	AGB	DS	LRYGB	ORYGB	SLEE VE
Employed Full-/Part-time	63.32	53.32	58.38	48.23	62.75
Homemaker	3.53	3.11	4.25	4.03	3.89
Not Specified	11.2	9.21	10.99	16.40	12.54
Self Employed	2.57	2.45	2.3	1.95	4.17
Student	1.74	1.55	1.78	1.35	2.20
Unemployed/Disabled	17.63	30.36	22.30	28.04	14.45
All p-values <0.01					

Cardiopulmonary	AGB	DS	LRYGB	ORYGB	SLEE VE
Hypertension	55.3	62.82	60.4	61.79	55.01
Angina	2.16	3.59	2.88	3.66	2.48
CHF	1.56	4.18	2.28	3.06	1.94
DVT/PE	2.6	3.77	2.88	2.88	3.75
Ischemic Heart Disease	4.07	3.65	4.39	5.21	3.83
Peripheral Vascular Disease	0.95	2.33	1.19	1.54	0.97
Pulmonary Hypertension	3.73	12.67	4.93	4.12	4.06
Hyperlipidemia	39.57	44.65	43.39	39.32	38.84
Obstructive Sleep Apnea	39.03	60.79	48.03	49.99	42.98
Obesity Hypoventilation	1.55	2.09	1.88	3.32	1.43
Asthma	15.21	23.07	18.72	20.52	15.44
All p-values <0.01					

Psychosocial Issues	AGB	DS	LRYGB	ORYGB	SLEE VE
Mental Health Disease	8.9	11.8	11.4	11.3	10.7
Disabled Functional Status	2.13	7.17	3.35	5.77	3.2
Depression	31.4	40.5	36.7	33.4	33.4
Psychological Impairment	13.82	16.08	17.77	17.83	16.69
Alcohol Use	30.8	34.7	31.0	15.85	34.73
Substance Abuse	0.37	0.9	0.45	0.28	0.28
Tobacco Use	6.44	6.16	6.16	5.55	7.25
All p-values <0.01					

Methods

From the Surgical Review Corporation's BOLD database, pre-operative demographics and morbid obesity co-morbidities of 166,601 patients who had ORYGB (n=5389), LAPRYGB (n=83,059), AGB (n=67,514), SLEEVE (n=8,966), or DS (n=1,673) were tabulated. The continuous variables weight and BMI were analyzed using an ANOVA with treatment in the model. Statistical significance for distribution of obesity-related co-morbidities was examined by using a general linear model with treatment in the model, and modified for a binomial distribution of data.

	Adjustable Gastric Band	Duodenal Switch	Laparoscopic RYGB	Open RYGB	Vertical Sleeve Gastrectomy
Population (N)	67514	1673	83059	5389	8966
Demographics					
Age	45+/-12	45+/-11	45+/-11	46+/-12	45+/-11
Weight in Kg	125+/-24	149+/-33	133+/-27	141+/-34	134+/-32
BMI	45+/-7	52+/-10	48+/-8	50+/-10	47+/-9
Sex F/M %	79.0/21.0	72.7/27.3	78.6/21.4	76.0/24.0	74.6/25.4
All p-values <0.01 except for age comparisons. AGB vs ORYGB 0.5988. DS vs LRYGB 0.1507. DS vs Sleeve 0.2095. LRYGB vs Sleeve 0.8527.					

Endocrine	AGB	DS	LRYGB	ORYGB	SLEE VE
Glucose Metabolism	29.73	42.08	38.93	39.01	30.62
Gout	3.07	4.54	3.74	3.82	3.68
Irregular Menses	19.92	26.54	24.1	17.7	22.08
Polycystic Ovarian Disease	4.54	7.65	5.48	3.84	4.90
All p-values <0.01					

Musculoskeletal	AGB	DS	LRYGB	ORYGB	SLEE VE
Back Pain	44.6	60.5	49.9	50.7	44.6
Fibromyalgia	2.7	5.0	3.6	3.4	2.7
Lower Extremity Edema	23.09	47.88	30.19	26.65	27.59
Musculoskeletal Pain	38.74	49.67	46.42	39.8	39.1
All p-values <0.01					

Conclusions

Differences between patients having these operations were clinically significant. Patients with the highest BMI and most severe co-morbidities underwent DS. Conversely, AGB was selected by the least overweight and healthiest patients, with lowest BMI and fewest co-morbidities. ORYGB patients had highest liver disease and cardiac ischemia, and BMI, back pain, and cardiopulmonary complications greater than laparoscopic procedures. LAPRYGB patients were intermediate in BMI and co-morbidities between the open procedures and SLEEVE/AGB. SLEEVE patients were akin to the AGB group but with generally higher medical acuity. Surgeon recommendation versus patient preference in operation choice is not clear from the data.