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# Outcomes of Roux-En-Y Gastric Bypass and Sleeve Gastrectomy in the Super-Obese and Super-Super-Obese: An Analysis of the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program Database

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Outcomes of Roux-en-Y gastric bypass and sleeve gastrectomy in the super-obese and super-super-obese patients: an analysis of the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program database



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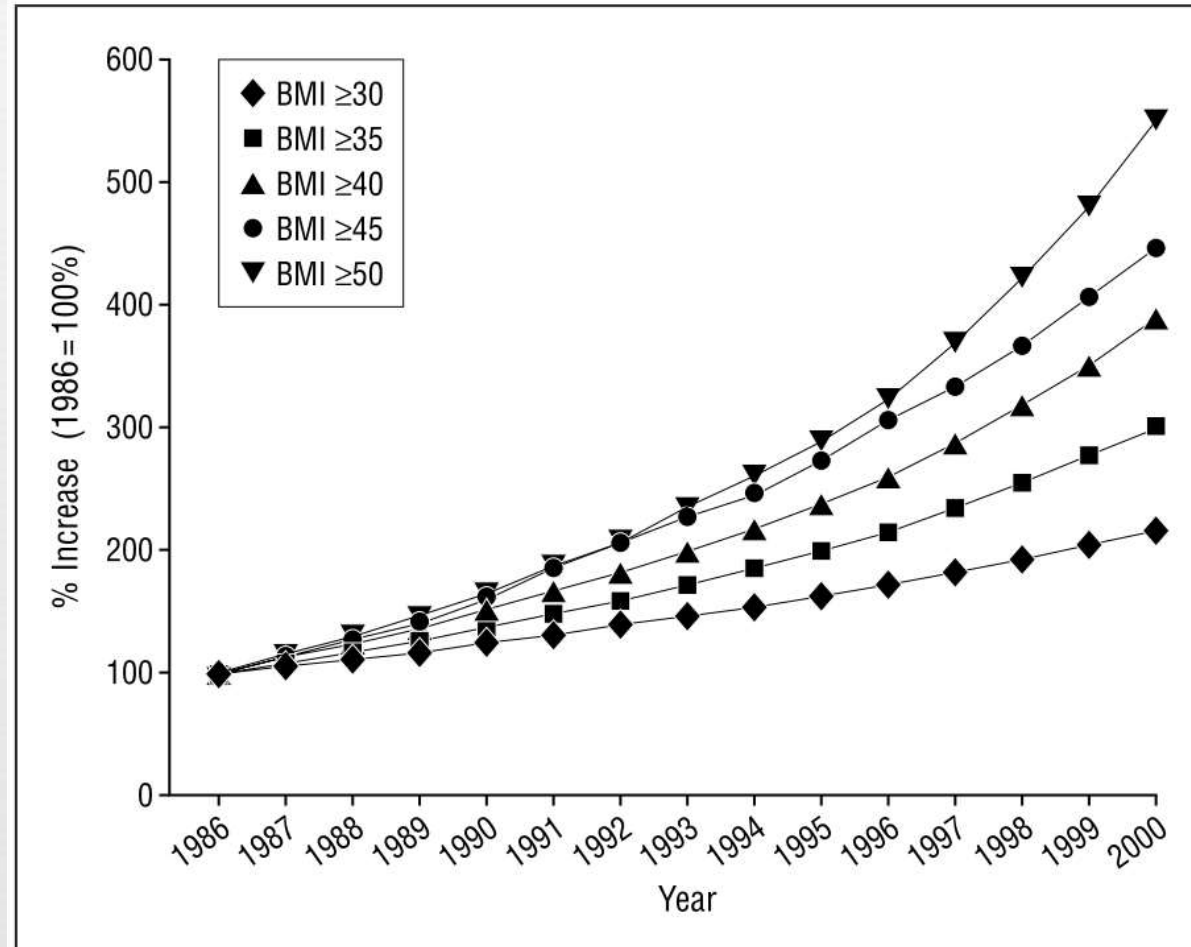


# Disclosure



**No disclosures**

# Background



Prevalence growth by severity of obesity.

# Background



- ∞ Super-obese (SO): BMI 50 – 60 kg/m<sup>2</sup>
- ∞ Super-super-obese (SSO): BMI ≥ 60 kg/m<sup>2</sup>
  
- ∞ Bariatric surgery constitutes a treatment challenge in this group:
  - ∞ Associated co-morbidities
  - ∞ Increased abdominal wall thickness
  - ∞ Increased visceral fat
  - ∞ Hepatic hypertrophy



# Aim



- ❧ Conflicting evidence regarding outcomes for laparoscopic Roux-en-Y gastric bypass in SO and SSO
- ❧ Minimal data on the outcomes of laparoscopic sleeve gastrectomy in SO and SSO
- ❧ Most data comes from single center studies with small sample sizes
- ❧ **Our aim is to evaluate operative outcomes of laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass (LRYGB) in SO and SSO patients using the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database**



# Methods



- ∞ MBSAQIP database for LSG and LRYGB from 2015 to 2017
- ∞ Excluded:
  - ∞ Revisions or conversions
  - ∞ Emergent cases
  - ∞ Age < 18 years
  - ∞ BMI < 35 kg/m<sup>2</sup>
  - ∞ Missing data
- ∞ 356,621 patients were identified



# Methods



- ❧ Stratified by BMI groups
  - ❧ BMI 35-49 kg/m<sup>2</sup>: morbidly obese (MO)
  - ❧ BMI 50-59 kg/m<sup>2</sup>: super-obese (SO)
  - ❧ BMI > 60 kg/m<sup>2</sup>: super-super-obese (SSO)
- ❧ Univariate analysis was used to compare patient characteristics
- ❧ Multivariate logistic regression models were used to evaluate the effect of BMI on postoperative outcomes
- ❧ Primary outcomes: any complication and mortality





# Results



Table 1. Surgeries performed for each patient BMI group.

	<b>MO</b> <b>(n = 272195)</b>	<b>SO</b> <b>(n = 65565)</b>	<b>SSO</b> <b>(n = 18861)</b>
<b>Laparoscopic sleeve gastrectomy</b>	198656 (73.0%)	44078 (67.2%)	12725 (67.5%)
<b>Laparoscopic Roux-en-Y gastric bypass</b>	73539 (27.0%)	21487 (32.8%)	6136 (32.5%)



# Results

Table 2. Patient characteristics for each patient BMI group.

		MO (n = 272195)	SO (n = 65565)	SSO (n = 18861)	P-Value
<b>Age, yr</b>		45.2 ± 11.9	42.7 ± 11.8	41.3 ± 11.1	< 0.001
<b>Sex</b>	Female	219828 (80.8%)	49384 (75.3%)	13459 (71.4%)	< 0.001
	Male	52367 (19.2%)	16181 (24.7%)	5402 (28.6%)	
<b>Race Group</b>	White	202754 (74.5%)	45638 (69.6%)	12407 (65.8%)	< 0.001
	African American	43735 (16.1%)	14209 (21.7%)	4993 (26.5%)	
	Other	25706 (9.45%)	5718 (8.72%)	1461 (7.75%)	
<b>BMI, kg/m<sup>2</sup></b>		42.4 ± 3.87	53.9 ± 2.75	66.7 ± 7.44	< 0.001



# Results



Table 3. Patient co-morbidities for each patient BMI group.

	MO (n = 272195)	SO (n = 65565)	SSO (n = 18861)	P-Value
Coronary artery disease	8957 (3.29%)	1961 (2.99%)	465 (2.47%)	< 0.001
Hypertension	128184 (47.1%)	34228 (52.2%)	10909 (57.8%)	< 0.001
Diabetes mellitus	69697 (25.6%)	18241 (27.8%)	5481 (29.1%)	< 0.001
COPD	4210 (1.55%)	1409 (2.15%)	547 (2.90%)	< 0.001
Oxygen Dependent	1390 (0.51%)	709 (1.08%)	485 (2.57%)	< 0.001
OSA	96745 (35.5%)	30440 (46.4%)	10460 (55.5%)	< 0.001
Smoker	22763 (8.36%)	6305 (9.62%)	1885 (9.99%)	< 0.001
Renal Insufficiency	1630 (0.60%)	476 (0.73%)	152 (0.81%)	< 0.001
Dialysis	789 (0.29%)	191 (0.29%)	42 (0.22%)	0.241
DVT/PE	5542 (2.04%)	1999 (3.05%)	850 (4.51%)	< 0.001
Use of assistive device	3203 (1.18%)	1529 (2.33%)	999 (5.30%)	< 0.001
Dependent functional status	2015 (0.74%)	887 (1.35%)	610 (3.23%)	< 0.001



# Results



Table 4. Operative details for laparoscopic sleeve gastrectomy.

	MO (n = 198656)	SO (n = 44078)	SSO (n = 12725)	P-Value
Conversion to open	83 (0.04%)	34 (0.08%)	13 (0.10%)	< 0.001
Operation Length, min	70.2 ± 34.7	73.8 ± 37.1	77.9 ± 38.4	< 0.001
Length of stay, days	1.57 ± 1.28	1.62 ± 1.19	1.79 ± 2.28	< 0.001

Table 5. Operative details for laparoscopic Roux-en-Y gastric bypass.

	MO (n = 73539)	SO (n = 21487)	SSO (n = 6136)	P-Value
Conversion to open	98 (0.13%)	35 (0.16%)	29 (0.47%)	< 0.001
Operation Length, min	116.1 ± 52.0	118.8 ± 52.6	120.9 ± 52.4	< 0.001
Length of stay, days	1.97 ± 1.66	2.06 ± 2.47	2.27 ± 2.47	< 0.001



# Results



Table 6. Primary outcomes for laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass for each BMI group.

	Laparoscopic sleeve gastrectomy				Laparoscopic Roux-en-Y gastric bypass			
	MO (n = 198656)	SO (n = 44078)	SSO (n = 12725)	P-Value	MO (n = 73539)	SO (n = 21487)	SSO (n = 6136)	P-Value
<b>Any complication</b>	5060 (2.55%)	1482 (3.36%)	582 (4.57%)	< 0.001	4355 (5.92%)	1419 (6.60%)	532 (8.67%)	< 0.001
<b>Mortality</b>	82 (0.04%)	35 (0.08%)	23 (0.18%)	< 0.001	72 (0.10%)	37 (0.17%)	20 (0.33%)	< 0.001



# Results



Table 7. Adjusted odds ratio (95% confidence interval) for primary outcomes for laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass.

	Laparoscopic sleeve gastrectomy		Laparoscopic Roux-en-Y gastric bypass	
	SO	SSO	SO	SSO
<b>Any complication</b>	<b>1.20 (1.13 – 1.28)</b>	<b>1.44 (1.31 – 1.58)</b>	<b>1.08 (1.01 – 1.15)</b>	<b>1.31 (1.19 – 1.45)</b>
<b>Mortality</b>	<b>1.65 (1.10 – 2.48)</b>	<b>3.30 (1.98 – 5.48)</b>	<b>1.85 (1.23 – 2.80)</b>	<b>3.32 (1.93 – 5.73)</b>

\* Significant variables ( $P < 0.050$ ) are in **bold**

# Conclusion



- ❧ LSG and LRYGB are associated with minimal increase in operative times, conversion to open, and length of stay in SO and SSO patients compared to MO patients.
- ❧ LSG and LRYGB are associated with increased overall 30-day perioperative morbidity and mortality in SO and SSO patients compared to MO patients.



# Limitations



❧ Retrospective design

❧ Inability to adjust for confounders not included in the database





OBES SURG (2017) 27:560–568  
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ORIGINAL CONTRIBUTIONS

## **Enhanced Recovery after Bariatric Surgery in the Severely Obese, Morbidly Obese, Super-Morbidly Obese and Super-Super Morbidly Obese Using Evidence-Based Clinical Pathways: a Comparative Study**

Aparna Sinha<sup>1</sup> • Lakshmi Jayaraman<sup>1</sup> • Dinesh Punhani<sup>1</sup> • Pradeep Chowbey<sup>1</sup>

# Future Directions



Fig. 1 Evidence-Based Clinical pathways applied for enhanced recovery after surgery in the bariatric patients in this study



Sinha, A. et al. Enhanced recovery after bariatric surgery in the severely obese, morbidly obese, super-morbidly obese, and super-super morbidly obese using evidence-based clinical pathways: a comparative study. *Obesity Surgery*. 2017;27:560-568.

# Thank You

