Tackling Obesity: Multidisciplinary Approaches for Comprehensive Care – January 25, 2025

Weill Cornell Medicine-Qatar

Bariatric Surgery: Indications and Health Benefits

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Disclosure Statement

Speaker:

Dr. Bassem Safadi

- Has no relevant financial/non-financial relationships to disclose.
- Will not be discussing unlabeled/unapproved use of drugs or products.

Bariatric Surgery: Indications and Health Benefits

Indications

Efficacy long-term

- Weight reduction
- Mortality reduction
- Metabolic syndrome

Safety of Bariatric Surgery today

Long-term outcomes (RCT)

Bariatric Surgery and Pharmacotherapy

Bariatric Surgery: Indications and Health Benefits

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Bariatric Surgery and Pharmacotherapy

Indications

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ELSEVIER

Surgery for Obesity and Related Diseases ■ (2022) 1–12

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery

Dan Eisenberg, M.D.[a,*], Scott A. Shikora, M.D.[b], Edo Aarts, M.D., Ph.D.[c], Ali Aminian, M.D.[d], Luigi Angrisani, M.D.[e], Ricardo V. Cohen, M.D., Ph.D.[f], Maurizio De Luca, M.D.[g], Silvia L. Faria, Ph.D.[h], Kasey P. S. Goodpaster, Ph.D.[d], Ashraf Haddad, M.D.[i], Jacques M. Himpens, M.D., Ph.D.[j], Lilian Kow, B.M.B.S., Ph.D.[k], Marina Kurian, M.D.[l], Ken Loi, M.B.B.S., B.Sc. (Med)[m], Kamal Mahawar, M.B.B.S., M.Sc.[n], Abdelrahman Nimeri, M.D., M.B.B.Ch.[o], Mary O'Kane, M.Sc., R.D.[p], Pavlos K. Papasavas, M.D.[q], Jaime Ponce, M.D.[r], Janey S. A. Pratt, M.D.[a,s], Ann M. Rogers, M.D.[t], Kimberley E. Steele, M.D., Ph.D.[u], Michel Suter, M.D.[v,w], Shanu N. Kothari, M.D.[x]

Indications

- **MBS is recommended for individuals with BMI 35 kg/m2, regardless of presence, absence, or severity of co-morbidities.**
- **MBS is recommended in patients with T2D and BMI 30kg/m2.**
- **MBS should be considered in individuals with BMI of 30– 34.9 kg/m2 who do not achieve substantial or durable weight loss or co-morbidity improvement using nonsurgical methods.**

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Indications

- **Obesity definitions using BMI thresholds do not apply similarly to all populations. Clinical obesity in the Asian population is recognized in individuals with BMI >25 kg/m2.**
- **Access to MBS should not be denied solely based on traditional BMI risk zones.**
- **There is no upper patient-age limit to MBS. Older individuals who could benefit from MBS should be considered for surgery after careful assessment of co-morbidities and frailty.**
- **Carefully selected individuals considered higher risk for general surgery may benefit from MBS.**

Indications

- **Carefully selected individuals considered higher risk for general surgery may benefit from MBS.**
- **Children and adolescents with BMI >120% of the 95th percentile and a major co-morbidity, or a BMI >140% of the 95th percentile, should be considered for MBS after evaluation by a multidisciplinary team in a specialty center.**
- **MBS is an effective treatment of clinically severe obesity in patients who need other specialty surgery, such as joint arthroplasty, abdominal wall hernia repair, or organ transplantation.**

Indications

- **Consultation with a multidisciplinary team can help manage the patient's modifiable risk factors with a goal of reducing risk of perioperative complications and improving outcomes.**
- **The ultimate decision for surgical readiness should be determined by the surgeon.**
- **Severe obesity is a chronic disease requiring long-term management after primary MBS. This may include revisional surgery or other adjuvant therapy to achieve desired treatment effect.**

Bariatric Surgery: Indications and Health Benefits

Indications

NATIONAL CLINICAL GUIDELINES

BARIATRIC AND METABOLIC SURGERY IN ADULTS

Ministry of Public Health
P.O. Box 42,
Doha, Qatar
Phone: (+974)4 407 0969
Email: clinicalguidelines@moph.gov.qa
Valid From: 6th April 2021
Date of Next Revision: 6th April 2023

3 Key Recommendations of the Guideline

The key recommendations of this guideline are as follows:

Indications for Endoscopic Bariatric Procedures (*Section 5.1*):

- Endoscopic bariatric procedures are indicated in the following patients [**R-GD**
  - BMI ≥27 kg/m^2 with obesity-related complications [**R-GDG**].
  - BMI ≥30 kg/m^2 *without* obesity-related complications [**R-GDG**].
  - BMI ≥40 kg/m^2 when:
    - The patient prefers non-surgical management.
    - There is a contraindication to surgery.
    - Pre-operative weight loss as a "bridge therapy" to safe surgery is required [1]:
      - Patients at high risk of a poor outcome may benefit even from modest weight loss, resulting in lowering of blood pressure, improving glucose tolerance, and reduction in thrombotic risk.

Bariatric Surgery: Indications and Health Benefits

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Indications for Bariatric and Metabolic Surgical Procedures (*Section 5.2*):

- Bariatric and metabolic surgery is indicated in the following patients [2–6]:
  - BMI 30-34.9 kg/m^2 with uncontrollable type 2 diabetes:
    - The patient should be assessed, and their comorbidity man
      prior to surgery.
    - Consider surgery at a lower BMI (≥27.5 kg/m^2) after MDT as
      of South Asian family origin, who have diabetes [**R-GDG**].
  - BMI 35-39.9 kg/m^2 *with* obesity-related complications.
  - BMI ≥40 kg/m^2 *without* obesity-related complications.
  - Special populations, e.g.:
    - Waiting for organ transplantation with a BMI ≥30 kg/m^2 and demonstrated lack of response to specialist medical weight management[7].
    - Post-renal transplant with a BMI ≥30 kg/m^2 and an uncontrollable obesity complication [**R-GDG**].

Bariatric Surgery: Indications and Health Benefits

Indications

Efficacy long-term

- Weight reduction
- Mortality reduction
- Metabolic syndrome

Safety of Bariatric Surgery today

Long-term outcomes (RCT)

Bariatric Surgery and Pharmacotherapy

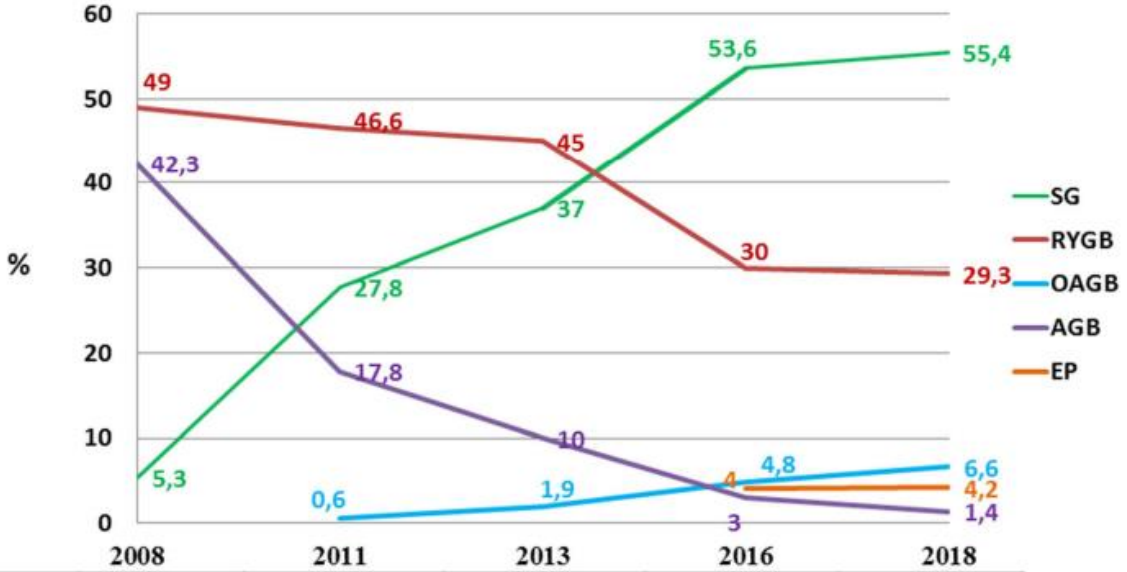

Fig. 1 Long-term trend and total number of bariatric/metabolic surgical operations from 2008 to 2018, and endoluminal procedures in the world from 2016 to 2018

Bariatric procedures (N)	344,221	340,768	468,609	685,874	696,191

Table 3 Number of bariatric/metabolic procedures declared by EC Societies, the presence of national guidelines for bariatric and metabolic surgery, and recommendation for preoperative gastroscopy

Obesity Surgery (2021) 31:1937–1948
https://doi.org/10.1007/s11695-020-05207-7

ORIGINAL CONTRIBUTIONS

Bariatric Surgery Survey 2018: Similarities and Disparities Among the 5 IFSO Chapters

Luigi Angrisani[1] · Antonella Santonicola[2] · Paola Iovino[2] · Almino Ramos[3] · Scott Shikora[4] · Lilian Kow[5]

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Efficacy MBS - Longterm

Swedish Obese Subjects (SOS) trial

- **2007 Surgical patients (versus 2040 control)**
  - Gastric banding 18%
  - Vertical banded gastroplasty 69%
  - Gastric bypass 13%
- **102 patients were restored to normal anatomy**
- **290/2040 controls underwent bariatric surgery**


The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Life Expectancy after Bariatric Surgery in the Swedish Obese Subjects Study

Lena M.S. Carlsson, M.D., Ph.D., Kajsa Sjöholm, Ph.D., Peter Jacobson, M.D., Ph.D., Johanna C. Andersson-Assarsson, Ph.D., Per-Arne Svensson, Ph.D., Magdalena Taube, Ph.D., Björn Carlsson, M.D., Ph.D., and Markku Peltonen, Ph.D.

NEJM 383;16 nejm.org October 15, 2020

Efficacy MBS - Longterm

Changes in BMI were small on average in the control group.
In the surgery group, a mean BMI reduction of approximately 11 was observed 1 year after surgery, followed by a gradual weight regain on average until year 8. Thereafter, the mean BMI stabilized at approximately 7 less than the baseline BMI

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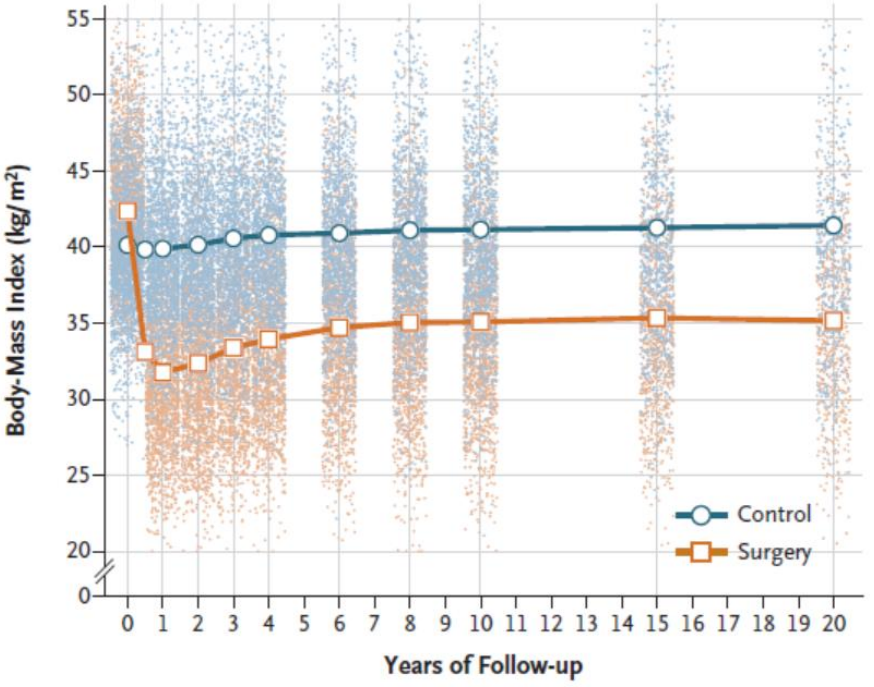

Figure 1. Body-Mass Index over a Period of 20 Years in the Control and Surgery Groups.

Efficacy MBS - Longterm

Median f/U for mortality

Surgical: 24 years
Control: 22 years
Reference: 20 years

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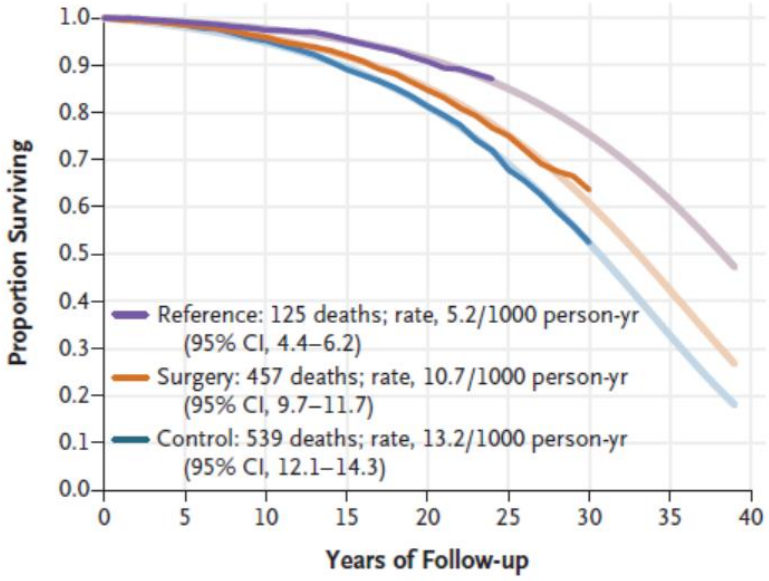

No. at Risk							
Reference	1135	1125	1106	1083	905	0	0
Surgery	2007	1915	1837	1744	1390	580	34
Control	2040	1961	1815	1589	1238	488	26

Figure 2. Survival in the Surgery and Control Groups and in the Reference Cohort.

NEJM 383;16 nejm.org October 15, 2020

Efficacy MBS - Longterm

The adjusted median life expectancy in the surgery group was 3.0 years (95% CI, 1.8 to 4.2) longer than in the control group but 5.5 years shorter than in the general population.

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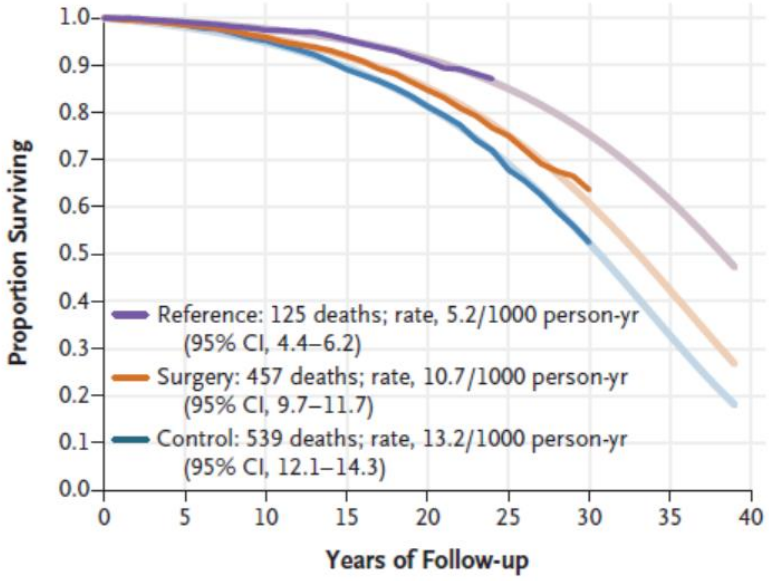

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Efficacy MBS - Longterm

The corresponding hazard ratio:

0.70 (95% CI, 0.57 to 0.85) for death from cardiovascular disease and
0.77 (95% CI, 0.61 to 0.96) for death from cancer.

NEJM 383;16 nejm.org October 15, 2020

Efficacy MBS - Longterm

Surgical mortality within 90 days: 2/1000
2.9% re-operation rate

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NEJM 383;16 nejm.org October 15, 2020

Table 3. Deaths and Complications during the First 90 Days after Bariatric Surgery in the SOS Study.

Adverse Event	Surgery Group (N=2007)
	no. of patients (%)
Death	5 (0.2)
Pulmonary event	89 (4.4)
Thromboembolism	16 (0.8)
Vomiting	61 (3.0)
Wound infection	43 (2.1)
Other infection	28 (1.4)
Hemorrhage	26 (1.3)
Anastomotic leak, peritonitis, or abscess	30 (1.5)
Ileus	10 (0.5)
Wound dehiscence	14 (0.7)
Other complication	21 (1.0)
At least one complication	292 (14.5)
Repeat surgery during the first 90 days	59 (2.9)

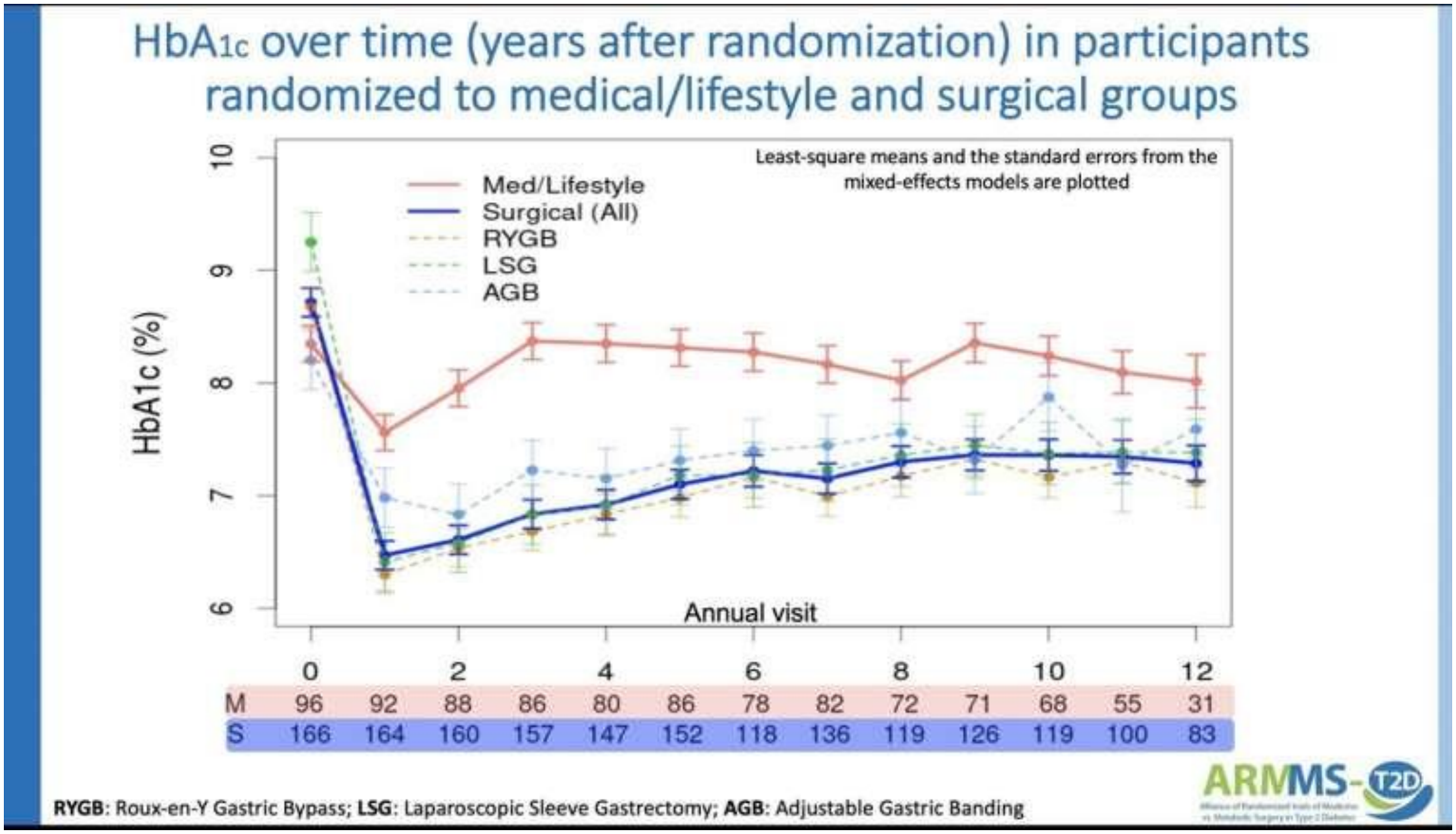
Efficacy MBS - Longterm

ARMMS-T2D
Alliance of Randomized trials of Medicine vs. Metabolic Surgery in Type 2 Diabetes

Table S5. Primary and Secondary Endpoint by Surgical Procedure

	Gastric Bypass (N=89)	SG (N=46)	AGB (N=36)	Medical/Lifestyle Intervention (N=85)
Primary Endpoint, n/N (%)				
Glycated hemoglobin ≤6.5 off diabetes medications	41/84 (48·8)	11/42 (26·2)	8/34 (23·5)	2/76 (2·6)
Secondary Endpoints, n/N (%)				
≤7.0 with or without diabetes medications	61/89 (68·5)	29/46 (63·0)	19/36 (52·8)	28/85 (32·9)
≤6.5 with or without diabetes medications	49/89 (55·1)	20/46 (43·5)	12/36 (33·3)	15/85 (17·6)
≤6.0 without diabetes medications	26/84 (31·0)	7/42 (16·7)	8/34 (23·5)	2/76 (2·6)
Glycated hemoglobin level, %				
No. with 3-year glycated hemoglobin	89	46	36	85
At 3 yr	6·7 ± 1·3	7·0 ± 1·3	7·3 ± 1·5	8·2 ± 1·9
Change from baseline	-2·1± 1·9	-2·5± 2·1	-0·9 ± 2·0	-0·1 ± 2·0

Efficacy MBS - Longterm



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Safety of Bariatric Surgery today

Long-term outcomes (RCT)

Bariatric Surgery and Pharmacotherapy

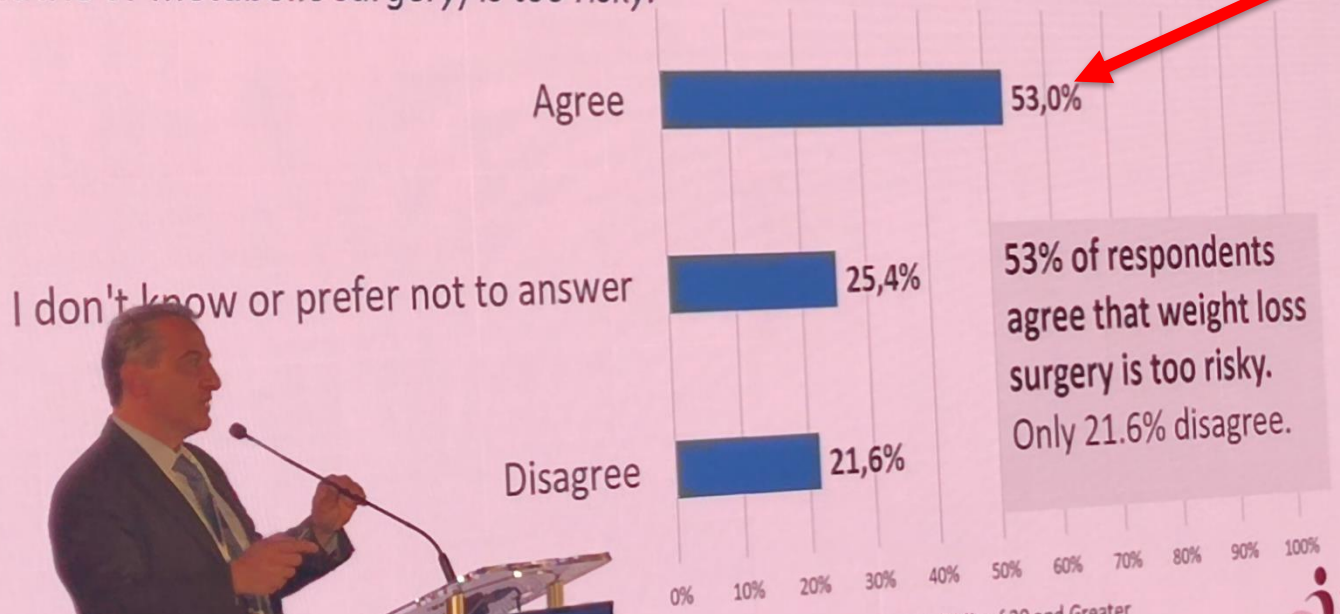
XXVI IFSO WORLD CONGRESS

NAPLES, ITALY
30 AUGUST - 1 SEPTEMBER, 2023

S.I.C.OB.

Bariatric/Metabolic Surgery Continues to be Seen as "Too Risky"

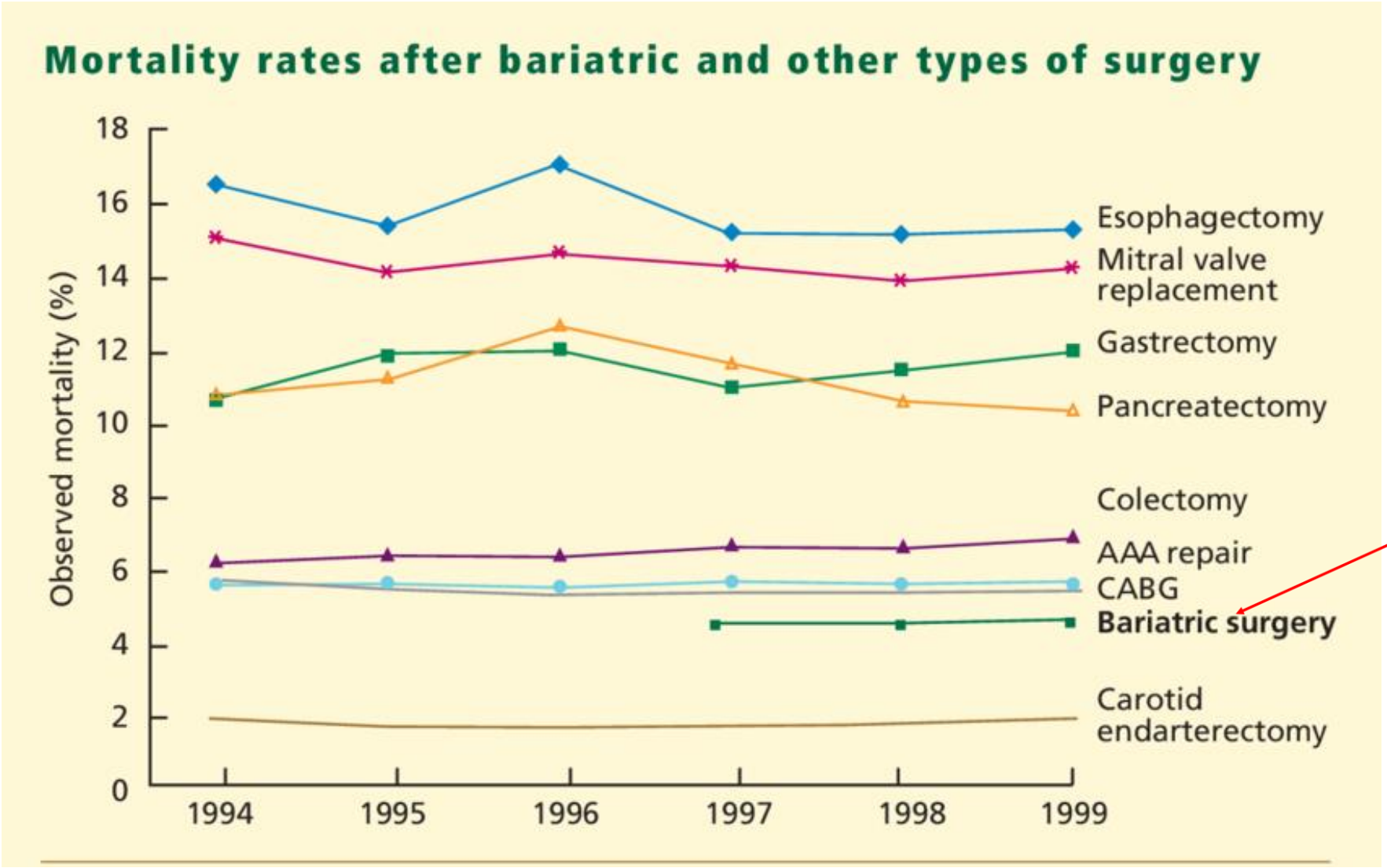
Do you agree or disagree with the following statement? "Weight loss surgery (also known as bariatric or metabolic surgery) is too risky."



53% of respondents agree that weight loss surgery is too risky.
Only 21.6% disagree.

Metabolic Health Institute

ikora (USA)



GOODNEY PP, SIEWERS AE, STUKEL TA, LUCAS FL, WENNBERG DE, BIRKMEYER JD. IS SURGERY GETTING SAFER? NATIONAL TRENDS IN OPERATIVE MORTALITY. J AM COLL SURG 2002

Safety of Bariatric Surgery today

Table 2. Trend Analysis for Outcomes

Factor	Overall	Year					p Value
		2015	2016	2017	2018	2019	
Total, n	690,770	123,434	136,017	145,251	145,745	140,323	-
Mortality, n (%)	620 (0.09)	141 (0.11)	113 (0.08)	114 (0.08)	137 (0.09)	115 (0.08)	0.016
Readmission (30 days), n (%)	25,228 (3.65)	5,206 (4.22)	5,148 (3.78)	5,034 (3.47)	5,024 (3.45)	4,816 (3.43)	<0.001
Reoperation (30 days), n (%)	8,244 (1.19)	1,654 (1.34)	1,604 (1.18)	1,641 (1.13)	1,685 (1.16)	1,660 (1.18)	<0.001
ICU admission, n (%)	4,639 (0.67)	943 (0.76)	878 (0.65)	925 (0.64)	963 (0.66)	930 (0.66)	<0.001
End-organ dysfunction, n (%)	1,038 (0.15)	265 (0.21)	178 (0.13)	201 (0.14)	206 (0.14)	188 (0.13)	<0.001

MBSAQIP®

METABOLIC AND BARIATRIC SURGERY
ACCREDITATION AND QUALITY IMPROVEMENT PROGRAM

Safety of Bariatric Surgery today

Roux-en-Y gastric bypass							
Total, n	183,413	36,884	36,494	37,017	36,676	36,342	-
ICU admission, n (%)	2,025 (1.10)	470 (1.27)	389 (1.07)	395 (1.07)	389 (1.06)	382 (1.05)	0.015
Mortality, n (%)	269 (0.15)	62 (0.17)	48 (0.13)	56 (0.15)	49 (0.13)	54 (0.15)	0.70
Reoperation (30 days), n (%)	4,058 (2.21)	887 (2.40)	779 (2.13)	785 (2.12)	793 (2.16)	814 (2.24)	0.053
Readmission (30 days), n (%)	10,529 (5.74)	2,294 (6.22)	2,117 (5.80)	2,051 (5.54)	2,076 (5.66)	1,991 (5.48)	<0.001
End-organ dysfunction, n (%)	520 (0.28)	136 (0.37)	94 (0.26)	101 (0.27)	104 (0.28)	85 (0.23)	0.008

Sleeve gastrectomy							
Total, n	507,357	86,550	99,523	108,234	109,069	103,981	-
ICU admission, n (%)	2,614 (0.52)	473 (0.55)	489 (0.49)	530 (0.49)	574 (0.53)	548 (0.53)	0.32
Mortality, n (%)	351 (0.07)	79 (0.09)	65 (0.07)	58 (0.05)	88 (0.08)	61 (0.06)	0.008
Reoperation (30 days), n (%)	4,186 (0.83)	767 (0.89)	825 (0.83)	856 (0.79)	892 (0.82)	846 (0.81)	0.22
Readmission (30 days), n (%)	14,699 (2.90)	2,912 (3.36)	3,031 (3.05)	2,983 (2.76)	2,948 (2.70)	2,825 (2.72)	<0.001
End-organ dysfunction, n (%)	518 (0.10)	129 (0.15)	84 (0.08)	100 (0.09)	102 (0.09)	103 (0.10)	<0.001

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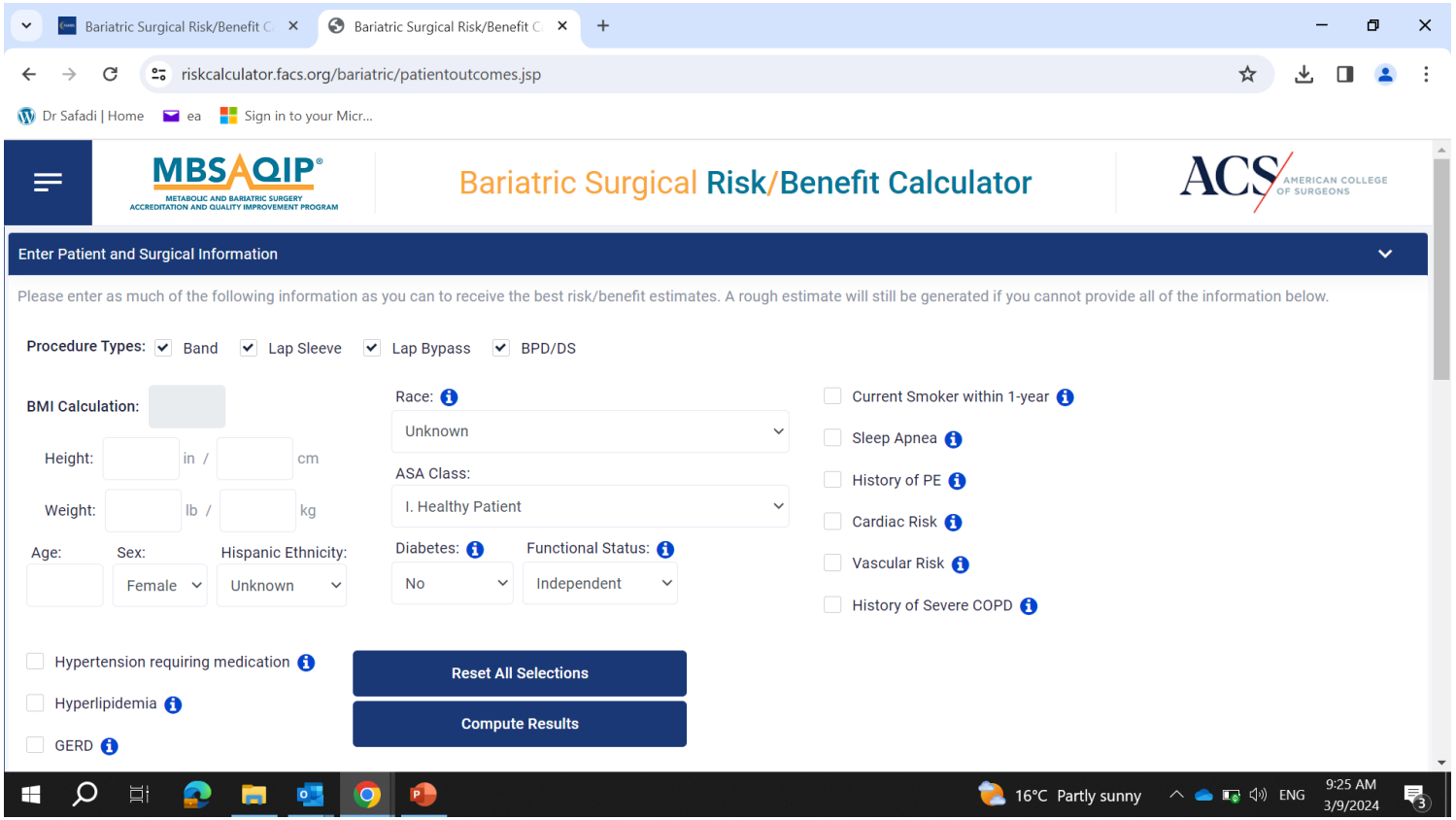
Safety of Bariatric Surgery today



Safety of Bariatric Surgery today

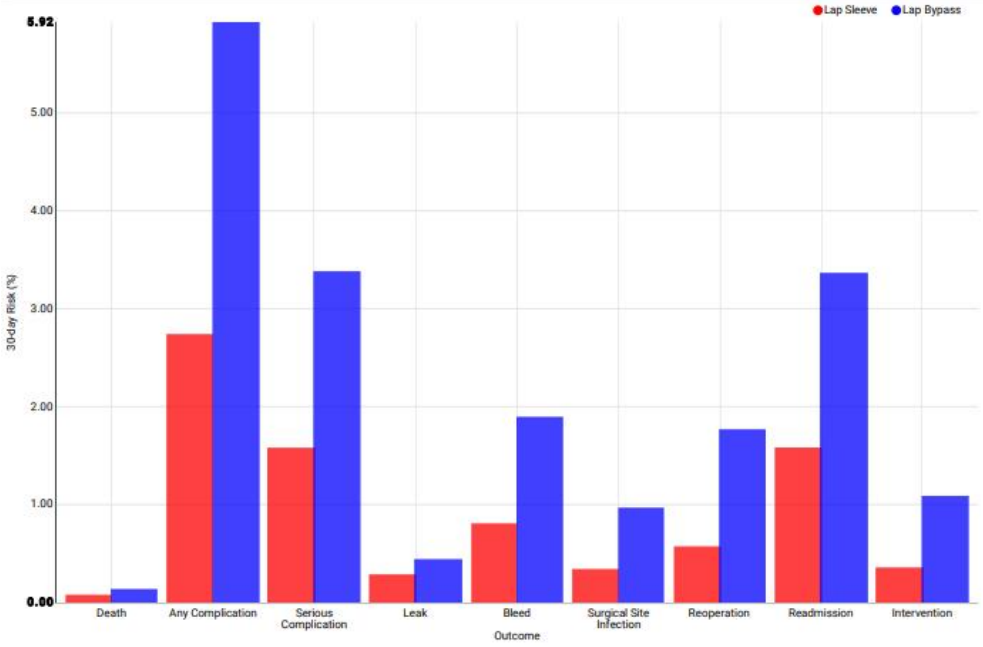
43 y.o. Male, Height 170 cm, Weight 130 kgs, BMI = 44.95 kg/m2
NIDDM, Htn, DL, smoker

30-day mortality risk: 0.07% LSG vs. 0.13% RYGB

MBSAQIP® METABOLIC AND BARIATRIC SURGERY ACCREDITATION AND QUALITY IMPROVEMENT PROGRAM | Bariatric Surgical Risk/Benefit Calculator | ACS AMERICAN COLLEGE OF SURGEONS

30-day Risk (Enlarged)

Risk Factors: 44.95 (BMI), 43.00 (Age), Male, Unknown (Race), Unknown (Hispanic Ethnicity), Mild Systemic Disease, Non-Insulin, Smoker, HTN, Hyperlipidemia



Procedure	Death	Any Complication	Serious Complication	Leak	Bleed	Surgical Site Infection	Reoperation	Readmission	Intervention
Lap Sleeve	0.07%	2.74%	1.58%	0.28%	0.80%	0.34%	0.57%	1.58%	0.35%
Lap Bypass	0.13%	5.92%	3.38%	0.43%	1.89%	0.96%	1.76%	3.36%	1.09%

Table 2 Mortality rates after elective operations in Finland 2009–2013

	Patients, total	Mortality, 30 days		Mortality, 90 days		Mortality, 1 year	
	n	*n*	%	*n*	%	*n*	%
Bariatric	3918	3	0.1	4	0.1	14	0.4
Cholecystectomy	31,195	50	0.2	89	0.3	265	0.8
Hysterectomy	23,940	20	0.1	57	0.2	245	1.0
Prostatectomy	4798	0	0	2	0.0	19	0.4
Knee arthroplasty	43,473	35	0.1	85	0.2	346	0.8
Hip arthroplasty	37,096	428	1.2	774	2.1	1516	4.1
Gastrectomy	538	16	3.0	41	7.6	130	24.2
Gastric resection	507	23	4.5	39	7.7	88	17.4
Colorectal resection	10,327	285	2.8	465	4.5	968	9.4
CABG	744	44	5.9	58	7.8	76	10.2

CABG coronary artery bypass grafting

OBES SURG (2017) 27:2444–2451
DOI 10.1007/s11695-017-2664-z

ORIGINAL CONTRIBUTIONS

Mortality Following Bariatric Surgery Compared to Other Common Operations in Finland During a 5-Year Period (2009–2013). A Nationwide Registry Study

Camilla Böckelman[1] · Tilda Hahl[1] · Mikael Victorzon[1,2]

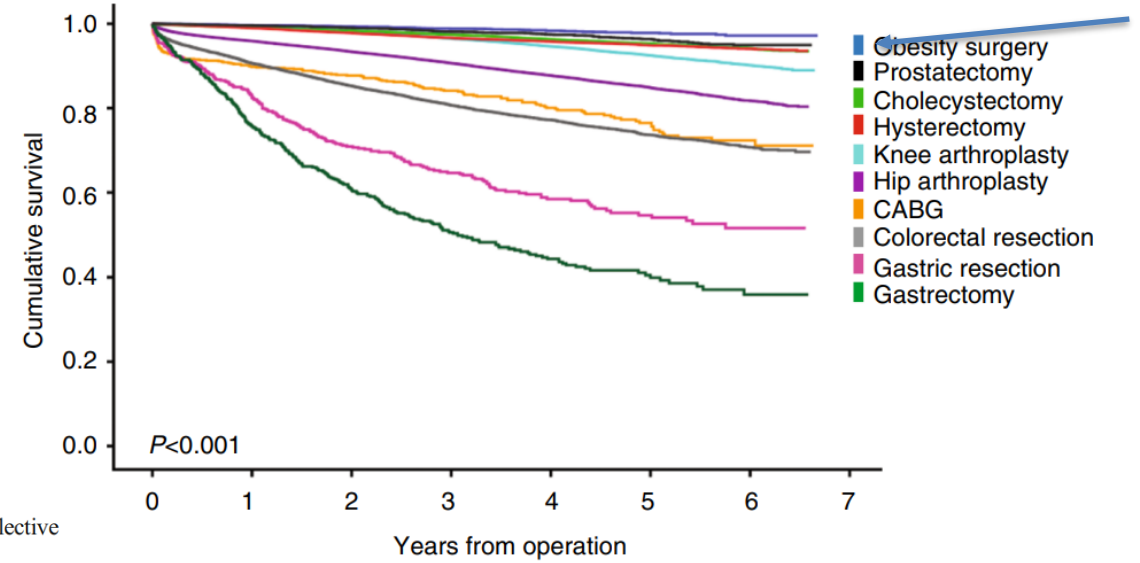


Fig. 2 Overall survival for bariatric surgery patients compared with other common operations according to the Kaplan-Meier method ($p < 0.001$, log rank test). *CABG* coronary artery bypass grafting

Table 4 Hazard ratio for 1-year postoperative mortality after elective operations in Finland 2009–2013 compared with bariatric surgery

	Hazard ratio	95% CI	*p* value
Bariatric	1.00		
Cholecystectomy	2.38	1.39–4.08	0.002
Hysterectomy	2.87	1.68–4.92	<0.001
Prostatectomy	1.11	0.56–2.21	0.772
Knee arthroplasty	2.23	1.31–3.81	0.003
Hip arthroplasty	11.7	6.90–19.8	<0.001
Gastrectomy	74.7	43.0–130	<0.001
Gastric resection	53.0	30.2–93.2	<0.001
Colorectal resection	27.5	16.2–46.7	<0.001
CABG	30.7	17.4–54.3	<0.001

CI confidence interval, *CABG* coronary artery bypass grafting

OBES SURG (2017) 27:2444–2451
DOI 10.1007/s11695-017-2664-z

ORIGINAL CONTRIBUTIONS

Mortality Following Bariatric Surgery Compared to Other Common Operations in Finland During a 5-Year Period (2009–2013). A Nationwide Registry Study

Camilla Böckelman[1] · Tilda Hahl[1] · Mikael Victorzon[1,2]

Bariatric Surgery: Indications and Health Benefits

Indications

Efficacy long-term

- Weight reduction
- Mortality reduction
- Metabolic syndrome

Safety of Bariatric Surgery today

Long-term outcomes (RCT)

Bariatric Surgery and Pharmacotherapy

MBS: RCT's

RYGB vs. SG

RCT:

BEST: safety

SLEEVEPASS trial: long-term outcomes

RCT: Bypass Equipoise Sleeve Trial

“BEST”
Registry based multi-center RCT
Sweden & Norway (2015-2022)
18 years+, BMI 35-50 kg/m2
76.% women, mean BMI 41.2 (1.4) kg/m2, mean age 41.3 (11.7) years
SG (n=878)
RYGB (n=857)

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Original Investigation | Surgery

Comparison of Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass
A Randomized Clinical Trial

Suzanne Hedberg, MD, PhD; Anders Thorell, MD, PhD; Johanna Österberg, MD, PhD; Markku Peltonen, PhD; Ellen Andersson, MD, PhD; Erik Näslund, MD, PhD; Jens Kristoffer Hertel, PhD; Marius Svanevik, MD, PhD; Erik Stenberg, MD, PhD; Martin Neovius, PhD; Ingmar Näslund, MD, PhD; Mikael Wirén, MD, PhD; Johan Ottosson, MD, PhD; Torsten Olbers, MD, PhD; for the BEST Study Group

RCT: Bypass Equipoise Sleeve Trial

Table 1. Demographic and Baseline Characteristics for Participants Randomized to Sleeve Gastrectomy or Roux-en-Y Gastric Bypass in the Bypass Equipoise Sleeve Trial[a]

Characteristic	Sleeve gastrectomy (n = 878)	Roux-en-Y gastric bypass (n = 858[b])
Sex		
Female	660 (75.2)	622 (72.5)
Male	218 (24.8)	236 (27.5)
Weight, mean (SD), kg	117 (18)	118 (18)
Height, mean (SD), cm	169 (9)	170 (9)
BMI, mean (SD)	40.8 (3.7)	40.9 (3.8)
Waist circumference, mean (SD) cm[c]	123 (13)	125 (13)
Diabetes[d]	106 (12.1)	118 (13.8)
Dyslipidemia[d]	116 (13.2)	111 (12.9)
Hypertension[d]	251 (28.6)	259 (30.2)
Sleep apnea[d]	124 (14.1)	118 (13.8)
Dyspepsia[d]	36 (4.1)	42 (4.9)
Depression[d]	124 (14.1)	107 (12.5)
Prior DVT or PE	27 (3.1)	19 (2.2)
Smoking[e]	74 (8.5)	95 (11.1)

JAMA Network Open. 2024;7(1):e2353141. doi:10.1001/jamanet

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Sex		
Female	660 (75.2)	622 (72.5)
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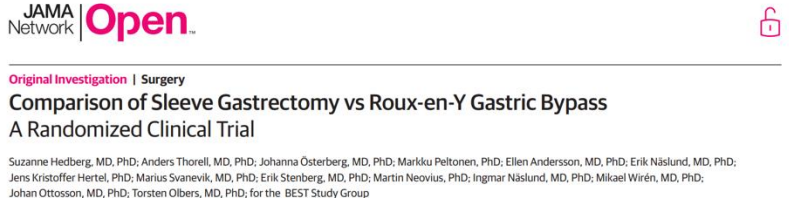

RCT: Bypass Equipoise Sleeve Trial

SAFETY

<u>NO 30- or 90-day mortality</u>.

Any adverse event occurred in 40 of 878 patients (4.6%) in the SG group and 54 of 857 patients (6.3%) in the RYGB group (P = .11).

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RCT: Bypass Equipoise Sleeve Trial

OR time: 47 vs 68 min
0 conversion to open
Hosp stay 1.3 vs 1.3 days
Re-adm within 30 days 3.1% vs 4%

Table 2. Intraoperative and Perioperative Outcomes for Participants Randomized to Sleeve Gastrectomy or Roux-en-Y Gastric Bypass in the Bypass Equipoise Sleeve Trial[a]

Outcome	Sleeve gastrectomy (n = 878)	Roux-en-Y gastric bypass (n = 857)	*P* value
Operation time, mean (SD), min	47.3 (17.8)	67.7 (25.3)	<.001
Laparoscopic surgical access	877 (99.9)	857 (100)	>.99
Converted to open surgery	0	0	
Presence of a hiatal hernia[b]	39 (4.8)	45 (5.6)	.50
Axial length of hiatal hernia, mean (SD), cm[c]	2.0 (1.0)	2.3 (1.2)	.25
Intraoperative bleeding >100 mL	7 (0.8)	7 (0.8)	>.99
Intraoperative complications[d]	9 (1.0)	17 (2.0)	.12
Splenic injury	1 (0.1)	0	>.99
Bowel injury	0	9 (1.1)	.002
Other intraoperative complication	8 (0.9)	8 (0.9)	>.99
Thrombosis prophylaxis[e]	860 (99.9)	848 (99.8)	.62
Antibiotic prophylaxis[f]	858 (99.8)	847 (99.6)	.68
Postoperative hospital stay, mean (SD), d	1.3 (1.8)	1.3 (1.8)	.33
Readmitted to hospital within 30 d[g]	27 (3.1)	34 (4.0)	.33

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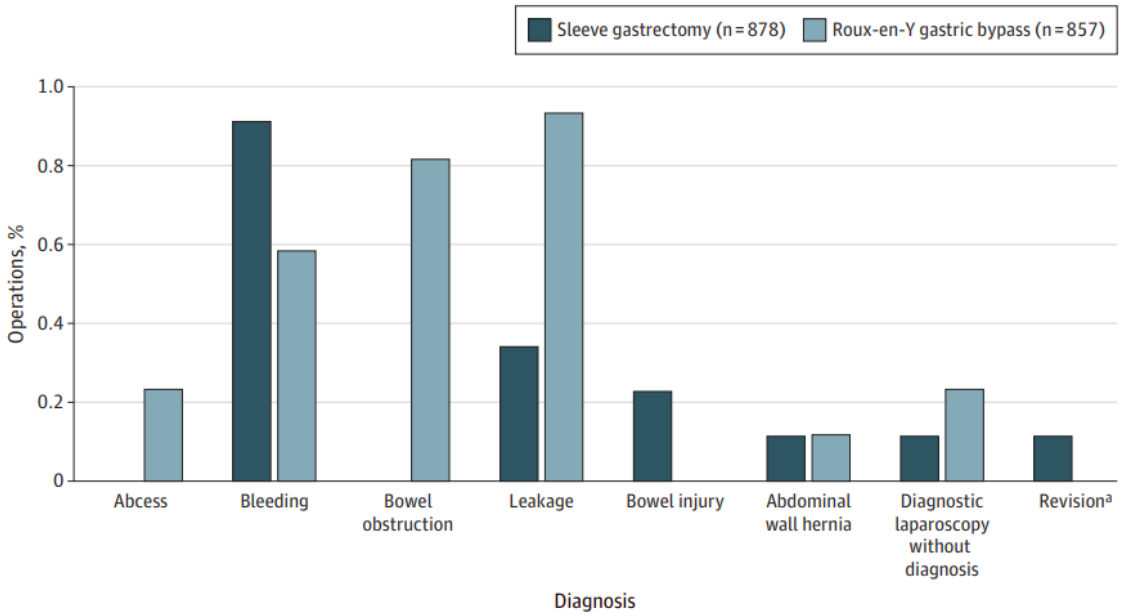
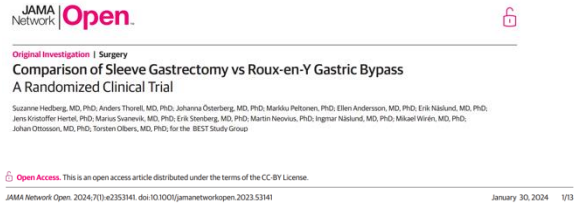
RCT: Bypass Equipoise Sleeve Trial

Figure 2. Diagnoses at Reoperation for Complications Until 30 Days Postoperatively After Sleeve Gastrectomy and Roux-en-Y Gastric Bypass



JAMA Network Open. 2024;7(1):e2353141. doi:10.1001/jamanetworkopen.2023.53141



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Original Investigation | Surgery

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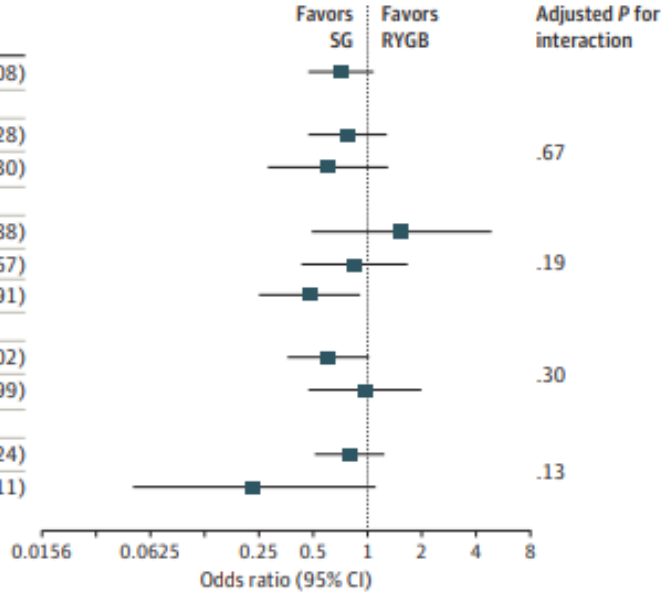
RCT: Bypass Equipoise Sleeve Trial

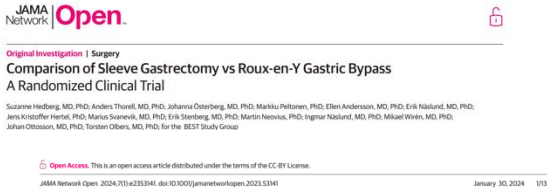
Figure 3. Risk (Adjusted Odds Ratio After Multivariate Logistic Regression) of Any Adverse Event and Serious Adverse Events

A Any adverse event, days 0-30

Characteristic	No. of events/ total events SG	RYGB	Odds ratio (95% CI)	Adjusted *P* for interaction
Total	40/878	54/857	0.71 (0.47-1.08)	
Sex				
Female	29/660	35/622	0.77 (0.47-1.28)	.67
Male	11/218	19/235	0.60 (0.28-1.30)	
Age, y				
<30	8/126	5/119	1.55 (0.49-4.88)	
30-45	17/343	19/329	0.85 (0.43-1.67)	.19
≥45	15/409	30/409	0.48 (0.25-0.91)	
BMI				
<42	25/571	38/540	0.60 (0.36-1.02)	.30
≥42	15/307	16/317	0.97 (0.47-1.99)	
Diabetes				
No	38/772	45/739	0.80 (0.51-1.24)	.13
Yes	2/106	9/118	0.23 (0.05-1.11)	



Any Adverse Event



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Original Investigation | Surgery

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Suzanne Hedberg, MD, PhD; Anders Thorell, MD, PhD; Johanna Österberg, MD, PhD; Markku Peltonen, PhD; Ellen Andersson, MD, PhD; Erik Näslund, MD, PhD; Jens Kristoffer Hertel, PhD; Marius Svanevik, MD, PhD; Erik Stenberg, MD, PhD; Martin Neovius, PhD; Ingmar Näslund, MD, PhD; Mikael Wirén, MD, PhD; Johan Ottosson, MD, PhD; Torsten Olbers, MD, PhD; for the BEST Study Group

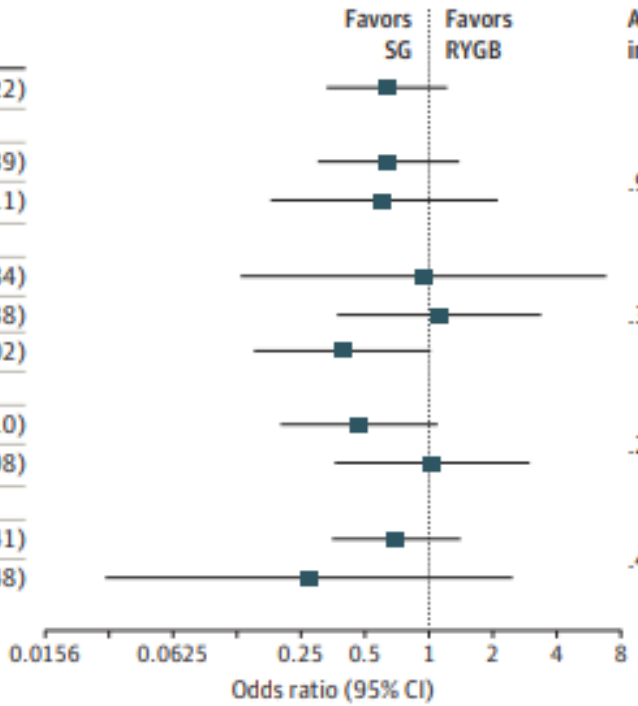
JAMA Network Open. 2024;7(1):e2353141. doi:10.1001/jamanetworkopen.2023.53141 January 30, 2024 1/13

RCT: Bypass Equipoise Sleeve Trial

Serious Adverse Event

B Serious adverse event, days 0-30

Characteristic	No. of events/ total events SG	RYGB	Odds ratio (95% CI)	Adjusted *P* for interaction
Total	15/878	23/857	0.63 (0.33-1.22)	
Sex				
Female	11/660	16/622	0.64 (0.30-1.39)	.96
Male	4/218	7/235	0.61 (0.18-2.11)	
Age, y				
<30	2/126	2/119	0.94 (0.13-6.84)	
30-45	7/343	6/329	1.12 (0.37-3.38)	.34
≥45	6/409	15/409	0.39 (0.15-1.02)	
BMI				
<42	8/571	16/540	0.47 (0.20-1.10)	.25
≥42	7/307	7/317	1.03 (0.36-2.98)	
Diabetes				
No	14/772	19/739	0.70 (0.35-1.41)	.42
Yes	1/106	4/118	0.27 (0.03-2.48)	

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Comparison of Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass
A Randomized Clinical Trial

The SLEEVEPASS RCT LSG vs. RYGB

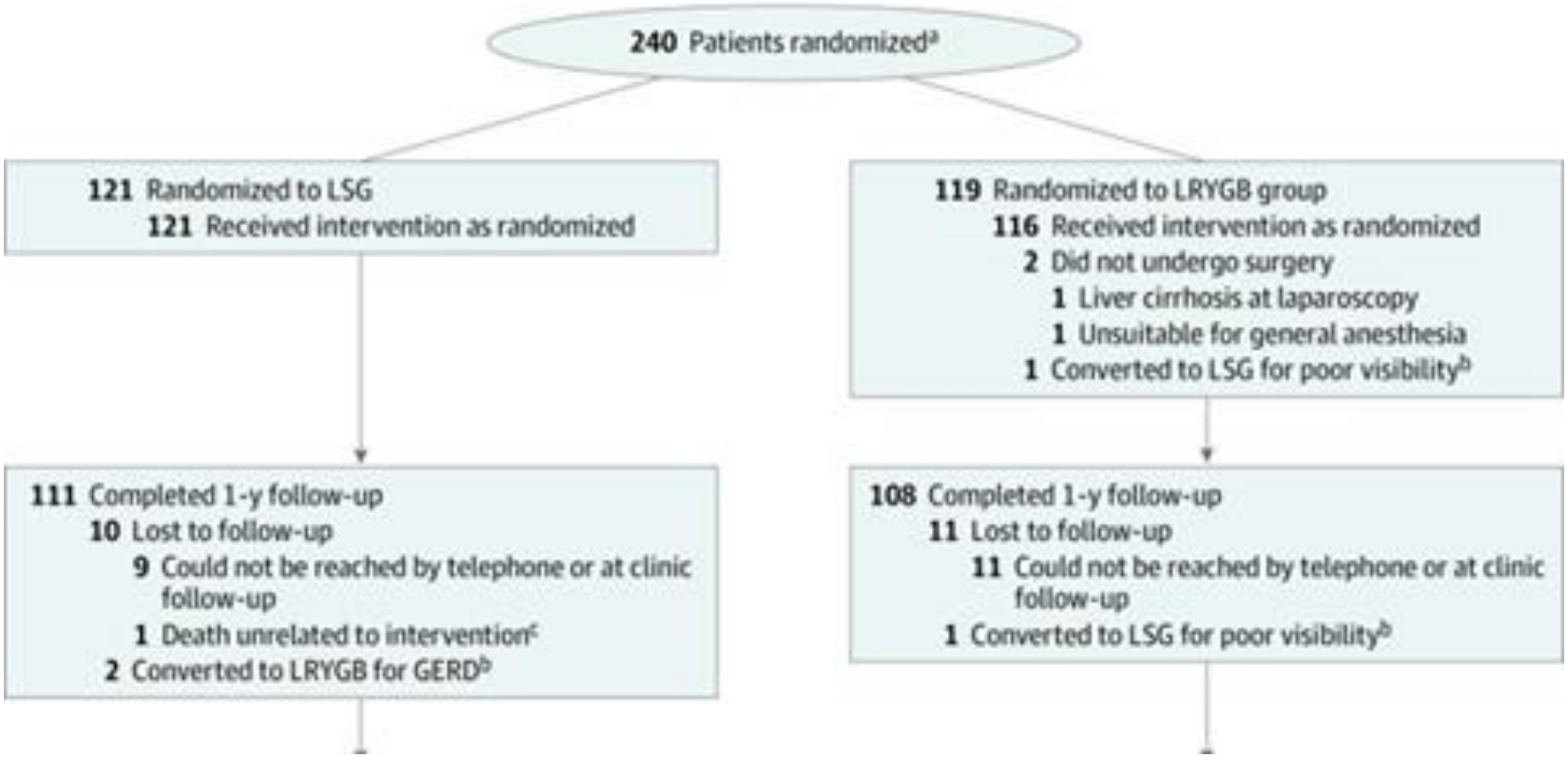
JAMA Surg. 2022 Aug; 157(8): 656–666. PMCID: PMC9218929
Published online 2022 Jun 22. doi: 10.1001/jamasurg.2022.2229: 10.1001/jamasurg.2022.2229 PMID: 35731535

Effect of Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass on Weight Loss, Comorbidities, and Reflux at 10 Years in Adult Patients With Obesity

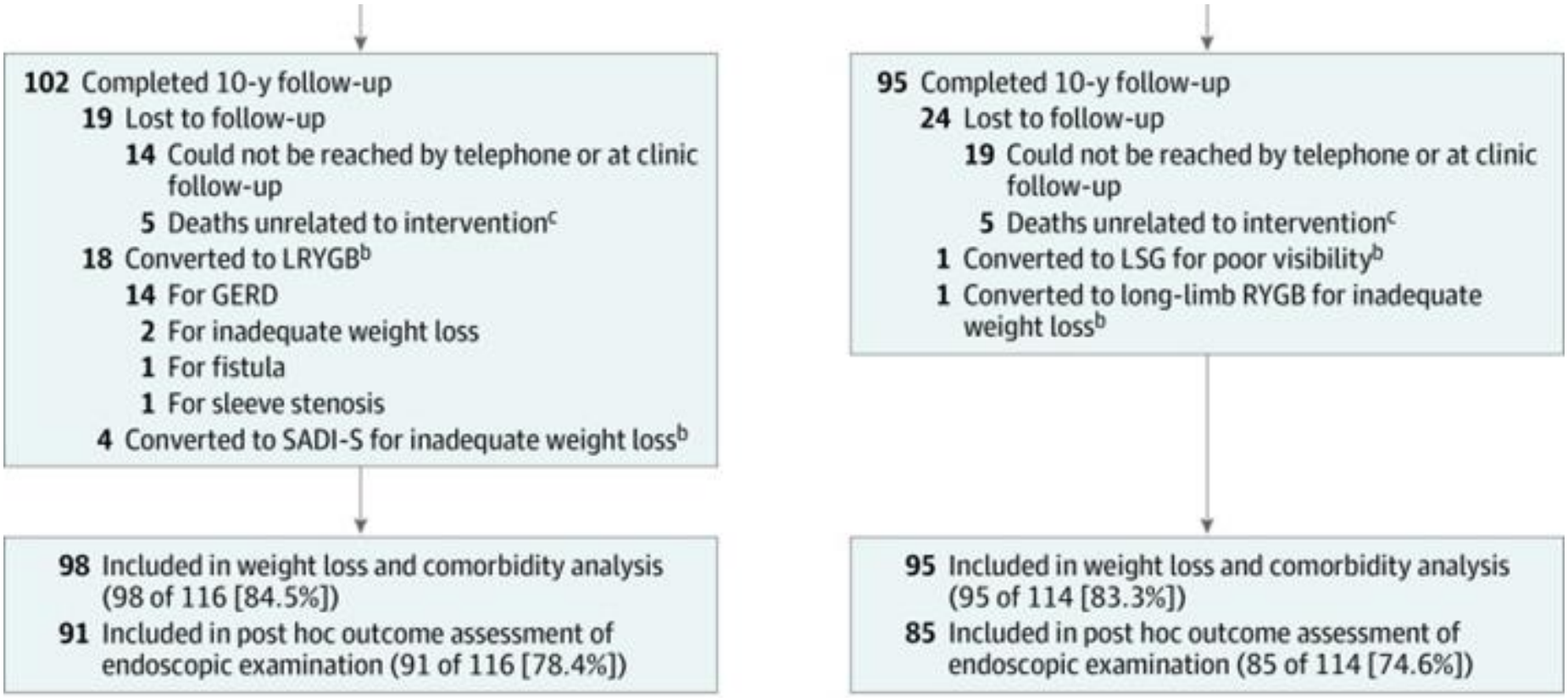
The SLEEVEPASS Randomized Clinical Trial

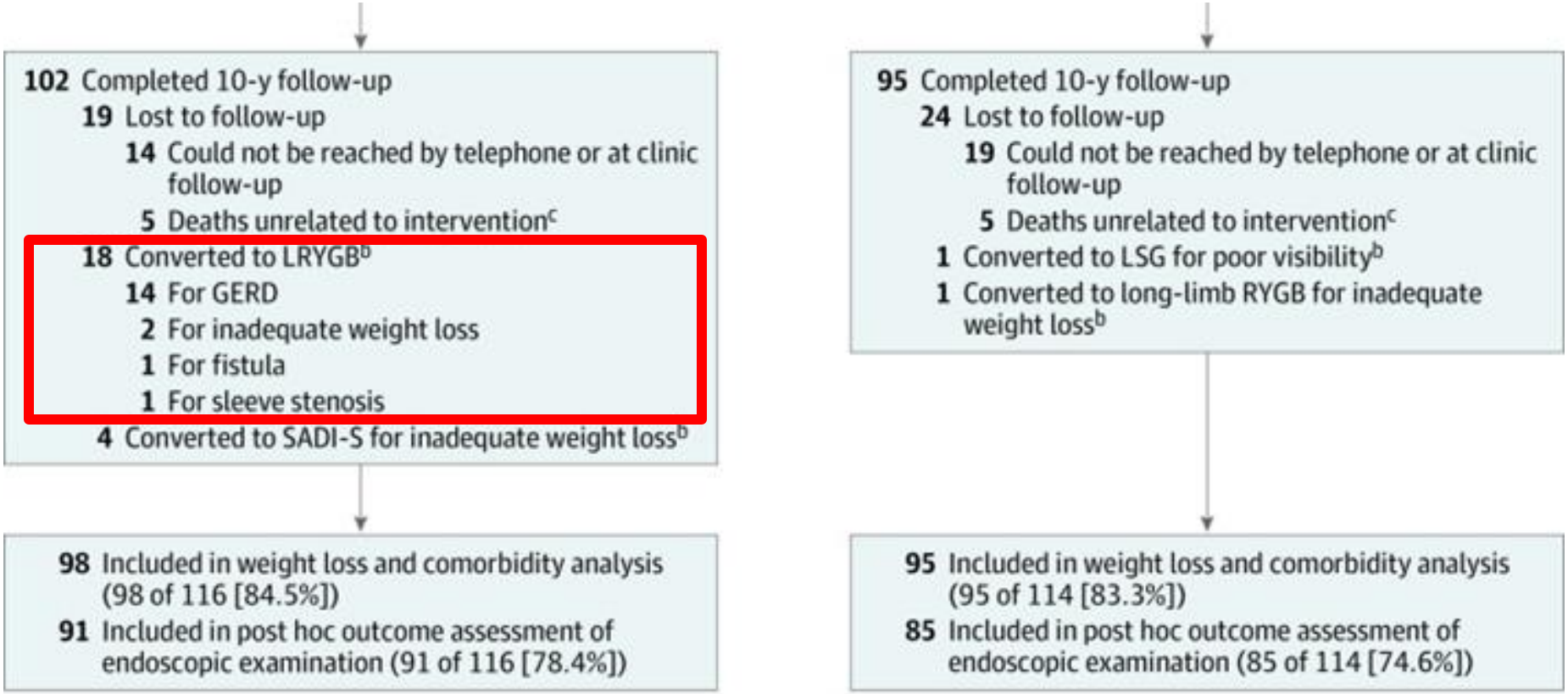
The initial trial was conducted from April2008 to June 2010 in Finland, with last follow-up on January 27, 2021.

The SLEEVEPASS RCT LSG vs. RYGB



The SLEEVEPASS RCT LSG vs. RYGB




102 Completed 10-y follow-up
19 Lost to follow-up
14 Could not be reached by telephone or at clinic follow-up
5 Deaths unrelated to intervention[c]
18 Converted to LRYGB[b]
14 For GERD
2 For inadequate weight loss
1 For fistula
1 For sleeve stenosis
4 Converted to SADI-S for inadequate weight loss[b]
98 Included in weight loss and comorbidity analysis (98 of 116 [84.5%])
91 Included in post hoc outcome assessment of endoscopic examination (91 of 116 [78.4%])
95 Completed 10-y follow-up
24 Lost to follow-up
19 Could not be reached by telephone or at clinic follow-up
5 Deaths unrelated to intervention[c]
1 Converted to LSG for poor visibility[b]
1 Converted to long-limb RYGB for inadequate weight loss[b]
95 Included in weight loss and comorbidity analysis (95 of 114 [83.3%])
85 Included in post hoc outcome assessment of endoscopic examination (85 of 114 [74.6%])

SLEEVEPASS RCT @ 10 years

	No. (%)		*P* value
	LSG (n = 121)	LRYGB (n = 119)	
Minor complications			
Vomiting/dehydration	0	3 (2.5)	NA
Gastroesophageal reflux	38 (31.4)	8 (6.7)	NA
Ulcer/stricture at gastrojejunal anastomosis	2 (1.7)	8 (6.7)	NA
Dumping	1 (0.8)[a]	3 (2.5)	NA
Fistula and abscess	1 (0.8)[b]	0 (0.0)	NA
Ureterolithiasis	0	1 (0.8)	NA
Adhesion-related intestinal obstruction	0	1 (0.8)	NA
Ventral hernia	0	1 (0.8)	NA
Suspected internal herniation	0	1 (0.8)	NA
Nonspecific abdominal pain	0	1 (0.8)	NA
Anemia	0	1 (0.8)	NA
Hypokalemia	0	1 (0.8)	NA
Total	42 (34.7)	29 (24.4)	.08[c]

SLEEVEPASS RCT @ 10 years

	No. (%)		*P* value
	LSG (n = 121)	LRYGB (n = 119)	
Major complications			
Fistulectomia	1 (0.8)[b]	0 (0.0)	NA
Gastroesophageal reflux	14 (11.6)[a]	0 (0.0)	NA
Internal herniation	0	18 (15.1)[d]	NA
Incisional hernia	3 (2.5)	3 (2.5)[d]	NA
Candy cane/blind loop resection	0	1 (0.8)	NA
Abdominal pain and stricture	0	1 (0.8)	NA
Sleeve stenosis	1 (0.8)	0 (0.0)	NA
Total	19 (15.7)	22 (18.5)[d]	.57[c]

SLEEVEPASS RCT @ 10 years

	No. (%)		*P* value
	LSG (n = 121)	LRYGB (n = 119)	
Major complications			
Fistulectomia	1 (0.8)[b]	0 (0.0)	NA
Gastroesophageal reflux	14 (11.6)[a]	0 (0.0)	NA
Internal herniation	0	18 (15.1)[d]	NA
Incisional hernia	3 (2.5)	3 (2.5)[d]	NA
Candy cane/blind loop resection	0	1 (0.8)	NA
Abdominal pain and stricture	0	1 (0.8)	NA
Sleeve stenosis	1 (0.8)	0 (0.0)	NA
Total	19 (15.7)	22 (18.5)[d]	.57[c]

SLEEVEPASS RCT @ 10 years

	No. (%)		*P* value
	LSG (n = 121)	LRYGB (n = 119)	
Major complications			
Fistulectomia	1 (0.8)[b]	0 (0.0)	NA
Gastroesophageal reflux	14 (11.6)[a]	0 (0.0)	NA
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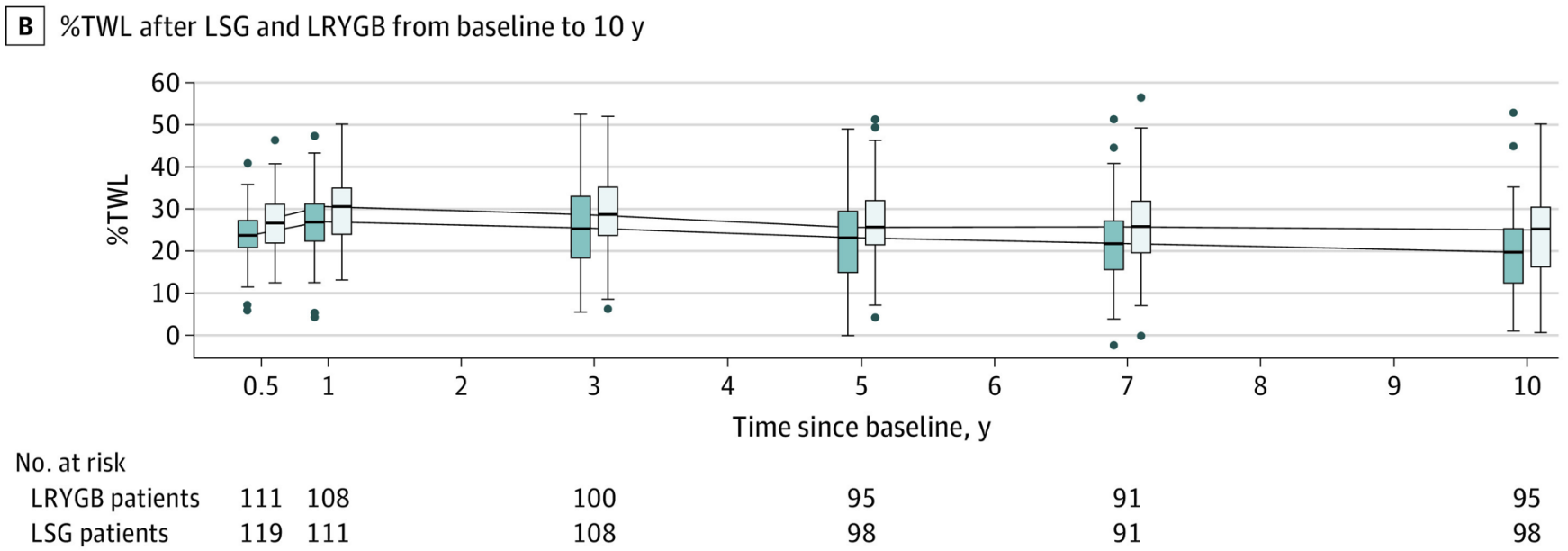
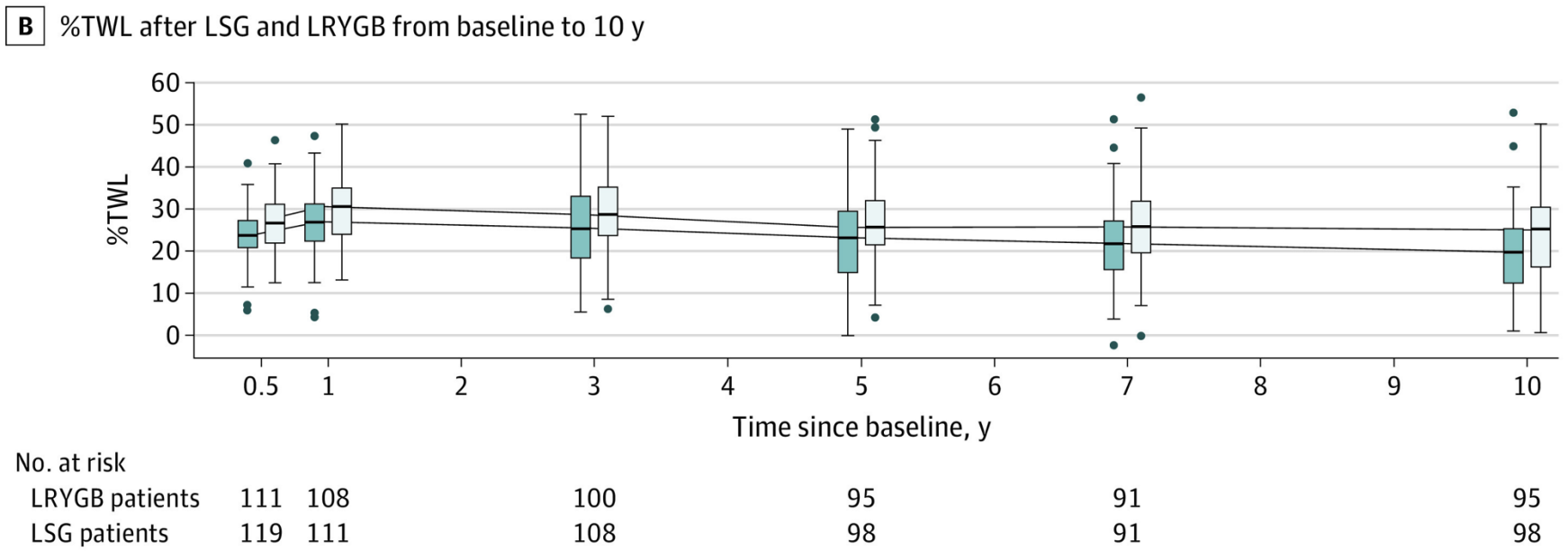
Candy cane/blind loop resection	0	1 (0.8)	NA
Abdominal pain and stricture	0	1 (0.8)	NA
Sleeve stenosis	1 (0.8)	0 (0.0)	NA
Total	19 (15.7)	22 (18.5)[d]	.57[c]

SLEEVEPASS RCT @ 10 years



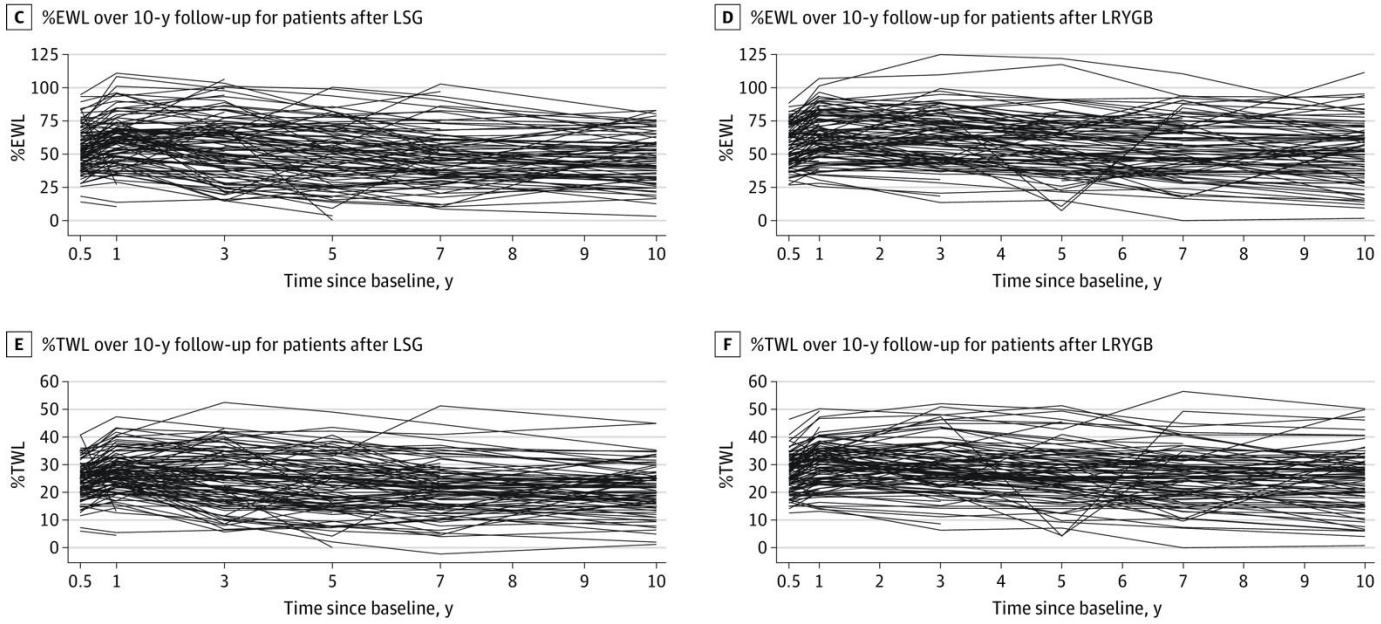
%TWL at 10 years 23.4% vs. 26.9% p<0.05

SLEEVEPASS RCT @ 10 years



Example: 130 kgs: 10 years 99.6 kgs vs. 95.0 kgs

SLEEVEPASS RCT @ 10 years



At 10 years, %TWL less than 5%: 5 of 98 patients (5.1%) after LSG and in 3 of 95(3.2%) after LRYGB (P= .72)

SLEEVEPASS RCT @ 10 years

Obesity-Related Comorbidities: GERD

	LSG (n=91)	RYGB (n=85)	p
PPI intake baseline	12%	6%	0.2
Esophagitis @10 years	31%	7%	<0.01
De novo BE @ 10 years	4%	4%	0.29
PPI intake @10 years	64%	36%	<0.01
GERD HRQL score	10.5	0.0	<0.01

SLEEVEPASS RCT @ 10 years

- **Remission of Obesity-Related Comorbidities: Type 2 Diabetes**

	LSG (n=121)	RYGB (n=119)	p
DM at baseline	43%	41%	
Remission of DM @10 years	26%	33%	0.63
Mean Fasting Glu @10years	6.9 mmol	6.8 mmol	0.42
Mean HbA1C @10 years	6.9%	7%	0.64

SLEEVEPASS RCT @ 10 years

- **Remission of Obesity-Related Comorbidities: Type 2 Diabetes**

Type 2 DM pre-op duration	DM Remission rate
0-2 years	52%
2-10 years	25%
More than 10 years	0%
P-value	0.01

SLEEVEPASS RCT @ 10 years

- **Remission of Obesity-Related Comorbidities: Dyslipidemia**

	LSG (n=121)	RYGB (n=119)	p
Dyslipidemia at baseline	32%	38%	
Remission @10 years	19%	35%	0.23

SLEEVEPASS RCT @ 10 years

- **Remission of Obesity-Related Comorbidities: Hypertension**
-

	LSG (n=121)	RYGB (n=119)	p
Htn at baseline	69%	73%	
Discontinued meds @10 years	8%	24%	0.23
Reduced meds @ 10 years	32%	24%	
No change in meds @10 years	60%	53%	

SLEEVEPASS RCT @ 10 years

- **Remission of Obesity-Related Comorbidities: Obstructive sleep apnea**

	LSG (n=121)	RYGB (n=119)	p
OSA at baseline	24.8%	29.4%	
Discontinued CPAP @10 years	16%	31%	
Reduced CPAP settings	26%	14%	
No change in CPAP setings	58%	55%	0.3

SLEEVEPASS RCT @ 10 years

Conclusions and Relevance
At 10 years, %EWL was greater after LRYGB and the procedures were not equivalent for weight loss, but both LSG and LRYGB resulted in good and sustainable weight loss. Esophagitis was more prevalent after LSG, but the cumulative incidence of BE was markedly lower than in previous trials and similar after both procedures.

Bariatric Surgery: Indications and Health Benefits

Indications

Efficacy long-term

- Weight reduction
- Mortality reduction
- Metabolic syndrome

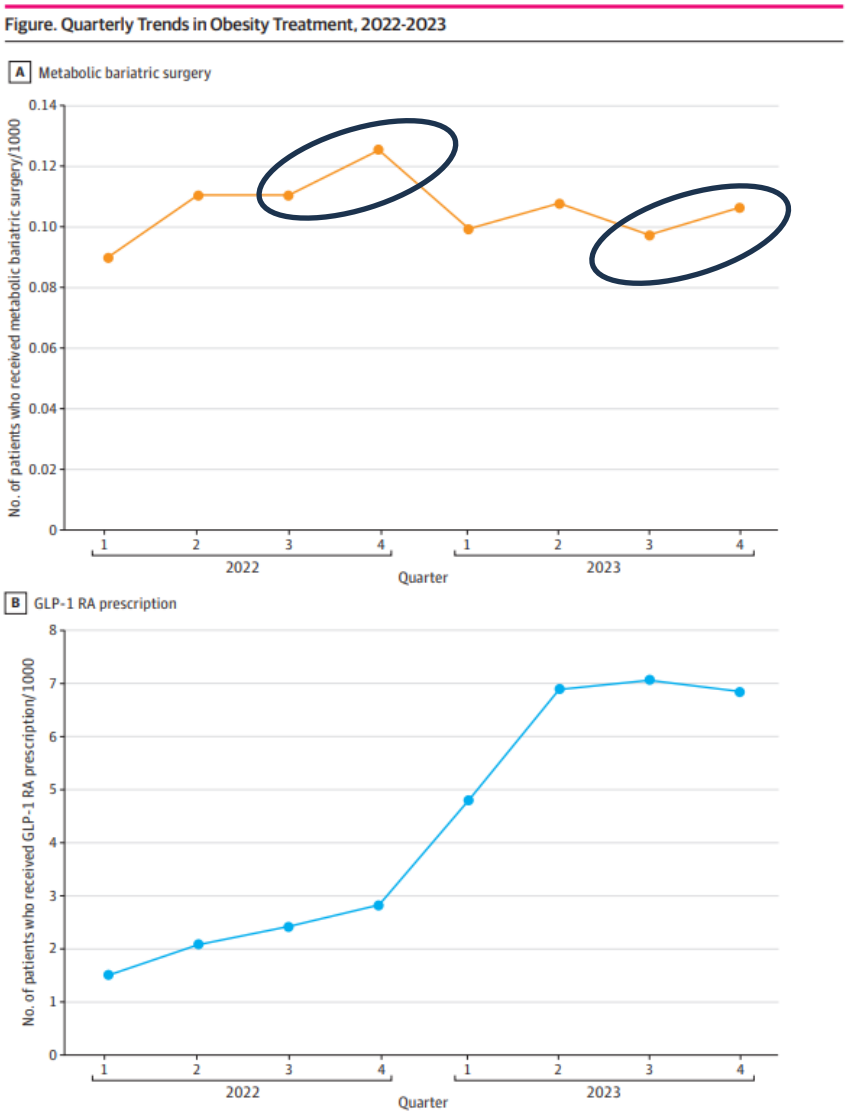
Safety of Bariatric Surgery today

Long-term outcomes (RCT)

Bariatric Surgery and Pharmacotherapy

Pharmacotherapy & bariatric surgery

- 81 092 patients GLP-1 RAs (5.0%)
- 5173 patients MBS (0.3%)
- 1 547 174 Neither treatment (94.7%)
- 132.6% increase in patients prescribed GLP-1 RAs between last 6 months of 2022 vs last 6 months of 2023 (1.89 vs 4.41 patients per 1000 patients).
- 25.6% decrease in MBS comparing the same periods (0.22 vs 0.16 patients per 1000 patients



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Research Letter | Surgery

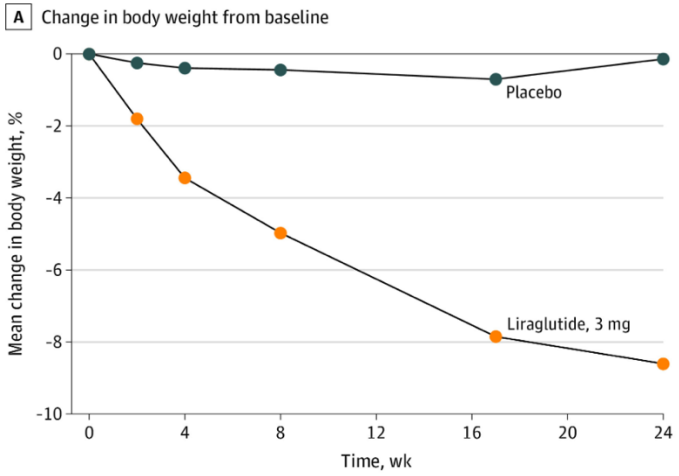
Metabolic Bariatric Surgery in the Era of GLP-1 Receptor Agonists for Obesity Management

Kevin Lin, BA; Ateev Mehrotra, MD, MPH; Thomas C. Tsai, MD, MPH

JAMA Network Open. 2024;7(10):e2441380

Pharmacotherapy & bariatric surgery

BARI-OPTIMISE randomized clinical trial including 70 patients with poor weight loss and suboptimal nutrient-stimulated glucagon-like peptide-1 response following metabolic surgery Suboptimal GLP-1 response was defined as a 2-fold or less increase in circulating active GLP-1 between 0 and 30 minutes following the meal.



JAMA Surg. 2023 Oct; 158(10): 1003–1011.
Published online 2023 Jul 26. doi: 10.1001/jamasurg.2023.2930: 10.1001/jamasurg.2023.2930
PMCID: PMC10372755
PMID: 37494014

Safety and Efficacy of Liraglutide, 3.0 mg, Once Daily vs Placebo in Patients With Poor Weight Loss Following Metabolic Surgery

The BARI-OPTIMISE Randomized Clinical Trial

CONCLUSION

- **Bariatric surgery remains today the most effective and durable treatment of Morbid Obesity**
- **It is very safe today in the setting of specialized bariatric programs**
- **Long-term weight regain is common**
- **Complications are procedure specific and requires constant follow-up**

CONCLUSION

- **Obesity is a complex condition that requires multi-modal therapy within multi-disciplinary teams**

- **The emerging role of pharmacotherapy promises to be of value in managing post bariatric surgery weight regain**