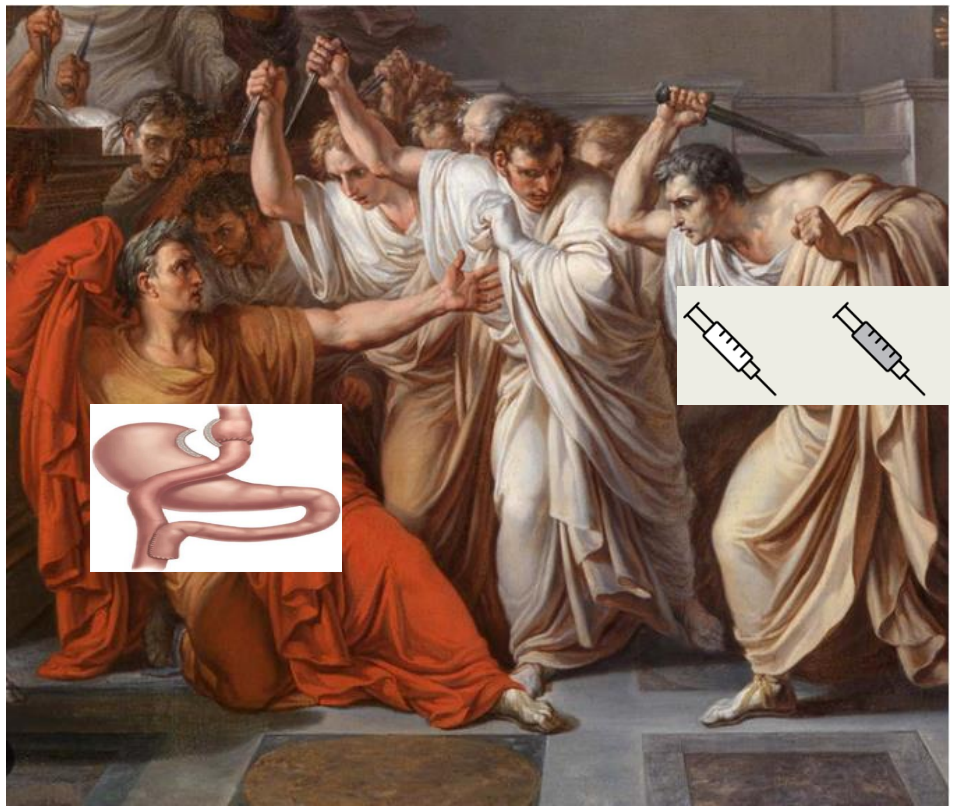
Will modern pharmacotherapy kill MBS?



- RICARDO COHEN

- Director, The Center for the treatment of Obesity and Diabetes Oswaldo Cruz German Hospital,
- São Paulo Brazil

- President IFSO Global
- Past President SBCBM (2011-2012)
- Past President IFSO LAC (2018-2019)

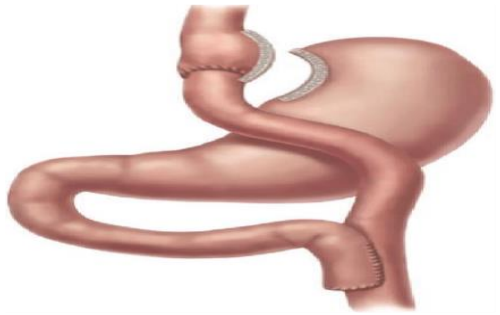
OSWALDO CRUZ
CENTRO ESPECIALIZADO EM OBESIDADE E DIABETES

Disclosures

- Research Grant, Johnson & Johnson
- Research Grant, Medtronic
- Research Grant, GI Dynamics
- Research Grant, Hospital Oswaldo Cruz Bioscience Institute
- Research Grant,Marlex, Brazil
- Speaker, Johnson & Johnson, Medtronic, Morphic Medical, NovoNordisk,Merck,Boston Scientific

- SAB: Morphic Medical, Medronic, Johnson & Johnson,Regeneron

Surgery is great for weight loss and glycemia



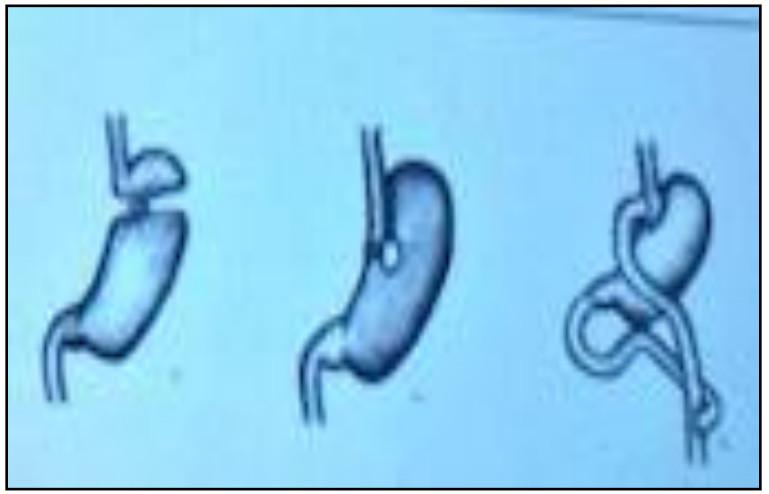
Prospective matched controlled

✓**Swedish Obese Subjects (SOS)**

✓Non RCT with over 20 years of follow-up

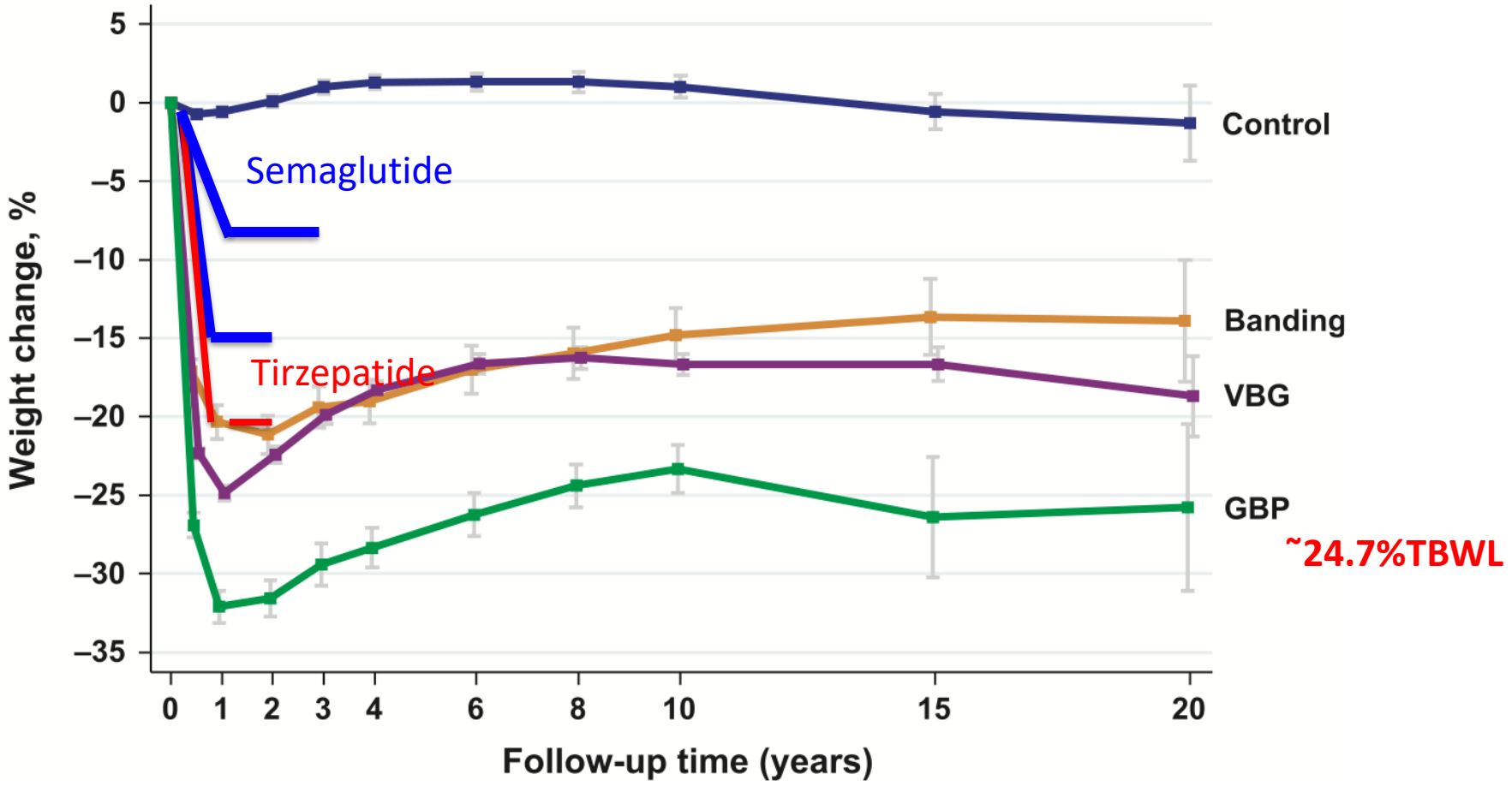
2039 PTS

X



2010 PTS, 11% with BMI < 35 kg/m²

Weight Loss After Bariatric Surgery Is Sustained for at Least 20 years-Superior to all other Treatments



JAMA. 2012;307(1):56-65

RCTs of metabolic surgery x BMT, at least 2 years of FU

	Surgical intervention	Follow-up duration, years	Glycaemic target	Proportion reaching glycaemic target (surgical intervention *vs* current medical treatment), %	Total bodyweight loss (surgical intervention *vs* current medical treatment), %
Dixon et al[37]	AGB	2	FPG <126 mg/dL and HbA_{1c} <6·2% (44·3 mmol/mol), without glucose-lowering agents	73% *vs* 13%	20% *vs* 1%
Cohen et al[21]	RYGB	2	HbA_{1c} <6·5% (47·5 mmol/mol), regardless of glucose-lowering agents	71% *vs* 51%	26% *vs* 5%
Simonson et al[38]	RYGB	3	FPG <126 mg/dL and HbA_{1c} <6·5% (47·5 mmol/mol) regardless of glucose-lowering agents	42% *vs* 0%	25% *vs* 5%
Ikramuddin et al[39]	RYGB	5	HbA_{1c} <7% (53·0 mmol/mol), regardless of glucose-lowering agents	55% *vs* 14%	22% *vs* 10%
Courcoulas et al[40]	RYGB *vs* AGB	5	HbA_{1c} <6·5 (47·5 mmol/mol) or FPG <126 mg/dL, without glucose-lowering agents	30% (RYGB) *vs* 19% (AGB) *vs* 0%	25% (RYGB) *vs* 15% (AGB) *vs* 6%
Wentworth et al[41]	AGB	5	FPG <126 mg/dL and 2 h blood glucose concentration <200 mg/dL (75 g glucose oral challenge test)	23% *vs* 9%	12% *vs* 2%
Schauer et al[42]	RYGB *vs* sleeve gastrectomy	5	HbA_{1c} <6% (42·1 mmol/mol), regardless of glucose-lowering agents	29% (RYGB) *vs* 23% (sleeve gastrectomy) *vs* 5%	23% (RYGB) *vs* 19% (sleeve gastrectomy) *vs* 5%
Mingrone et al[43]	RYGB *vs* biliopancreatic diversion	10	FPG <100 mg/dL and HbA_{1c} <6·5% (47·5 mmol/mol), without glucose-lowering agents	25% (RYGB) *vs* 50% (biliopancreatic diversion) *vs* 5%	37% (RYGB) *vs* 42% (biliopancreatic diversion) *vs* 7%

HbA_{1c}=glycated haemoglobin. FPG=fasting plasma glucose. AGB=adjustable gastric banding. RYGB=Roux-en-Y gastric bypass.

Table 1: **Randomised controlled trials with follow-up duration of at least 2 years comparing bariatric surgery with current medical treatment**

Lingvay I, Sumithran P, Cohen RV, Le Roux CW Lancet 2022

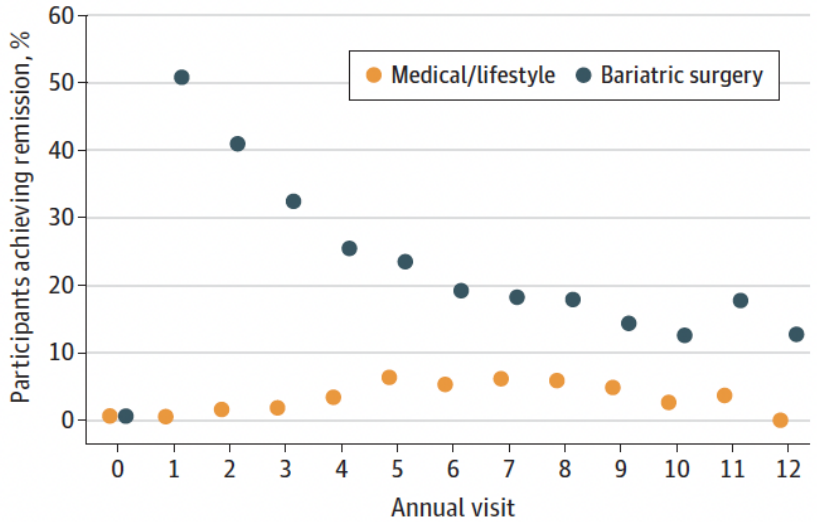
JAMA | Original Investigation

Long-Term Outcomes of Medical Management vs Bariatric Surgery in Type 2 Diabetes

Anita P. Courcoulas, MD; Mary Elizabeth Patti, MD; Bo Hu, PhD; David E. Arterburn, MD; Donald C. Simonson, MD, ScD; William F. Gourash, PhD; John M. Jakicic, PhD; Ashley H. Vernon, MD; Gerald J. Beck, PhD; Philip R. Schauer, MD; Sangeeta R. Kashyap, MD; Ali Aminian, MD; David E. Cummings, MD; John P. Kirwan, PhD

2024

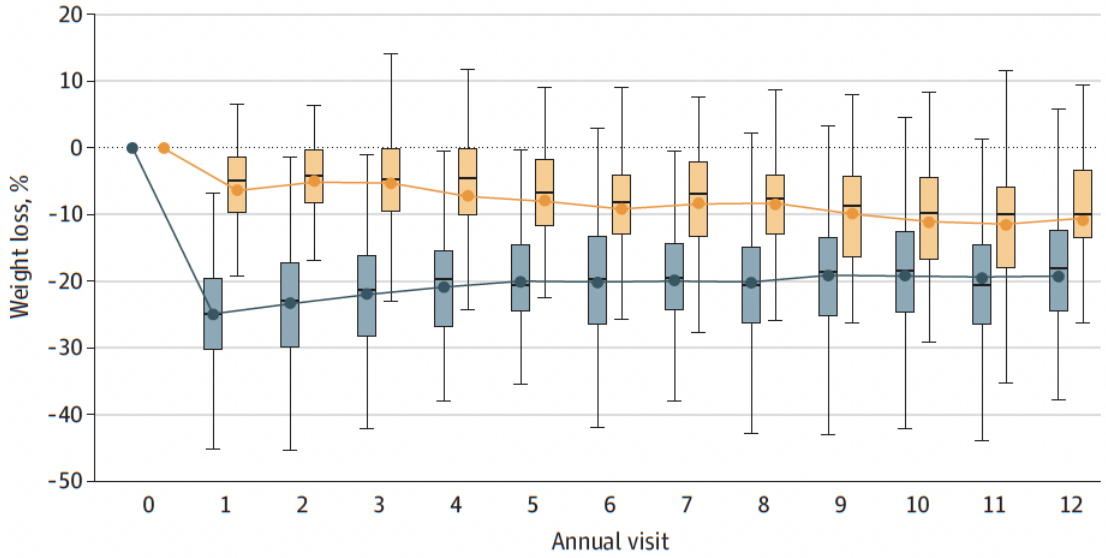
Figure 3. Diabetes Remission



No. of participants													
Medical/lifestyle	96	92	87	82	78	84	76	79	72	70	67	55	31
Bariatric surgery	166	164	151	149	140	146	108	131	116	125	117	99	82

Remission was defined as hemoglobin A_{1c} less than 6.5% and not receiving any medications for diabetes.

C Weight loss



No. at risk													
Bariatric surgery	166	164	161	158	144	149	122	139	121	126	121	106	85
Medical/lifestyle	96	91	84	86	79	78	77	75	73	73	70	60	34

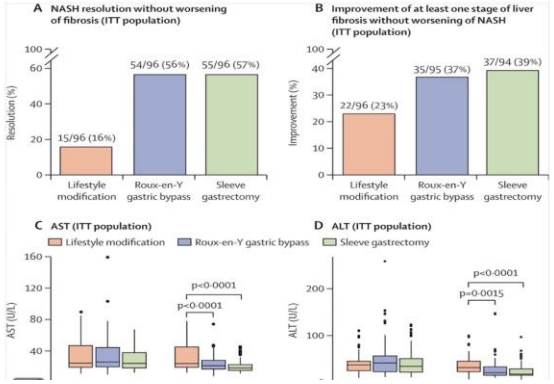
Non-glucocentric outcomes, CV events and mortality

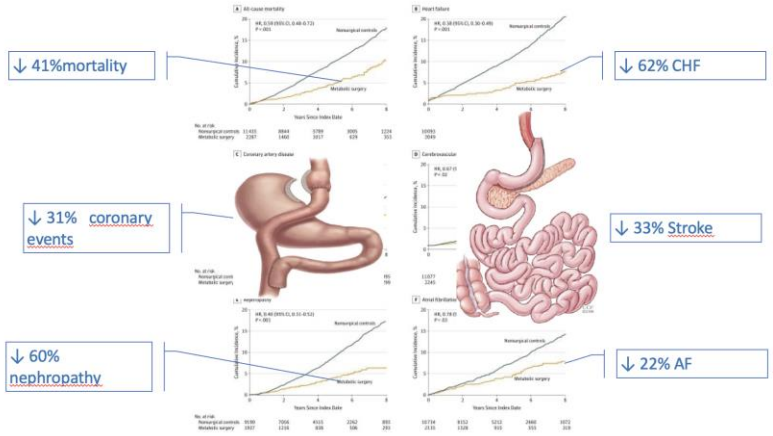
C

Bariatric–metabolic surgery versus lifestyle intervention plus best medical care in non-alcoholic steatohepatitis (BRAVES): a multicentre, open-label, randomised trial

Ornella Verrastro*, Simona Panunzi*, Lidia Castagneto-Gissey, Andrea De Gaetano, Erminia Lembo, Esmeralda Caprista, Caterina Guidone, Giulia Angelini, Francesco Pennestri, Luca Sessa, Fabio Maria Vecchio, Laura Riccardi, Maria Assunta Zocco, Ivo Boskoski, James R Casella-Mariolo, Pierluigi Marini, Maurizio Pompili, Giovanni Casella, Enrico Fiori, Francesco Rubino, Stefan R Bornstein, Marco Raffaelli, Geltrude Mingrone

Lancet,2023





JAMA, Sept 2, 2019

ORIGINAL RESEARCH

Randomized Trial of Effect of Bariatric Surgery on Blood Pressure After 5 Years

Carlos A. Schiavon, MD,[1,2] Alexandre B. Cavalcanti, MD,[3] Juliana D. Oliveira, CN,[1,2] Rachel H.V. Machado, CN,[1] Eliana V. Santucci, Ps,[1] Renato N. Santos, Snsr,[1] Julia S. Oliveira, Snsr,[1] Lucas P. Damiani, Snsr,[1] Débora Junqueira, MD,[3] Helio Halpern, MD,[3] Frederico de L.I. Monteiro, MD,[3] Patricia M. Noujaim, MD,[3] Ricardo V. Cohen, MD,[2] Marcio G. de Sousa, MD,[2] Luiz A. Bortolotto, MD,[3] Otavio Berwanger, MD,[2] Luciano F. Drager, MD[2,3]

JACC,2024

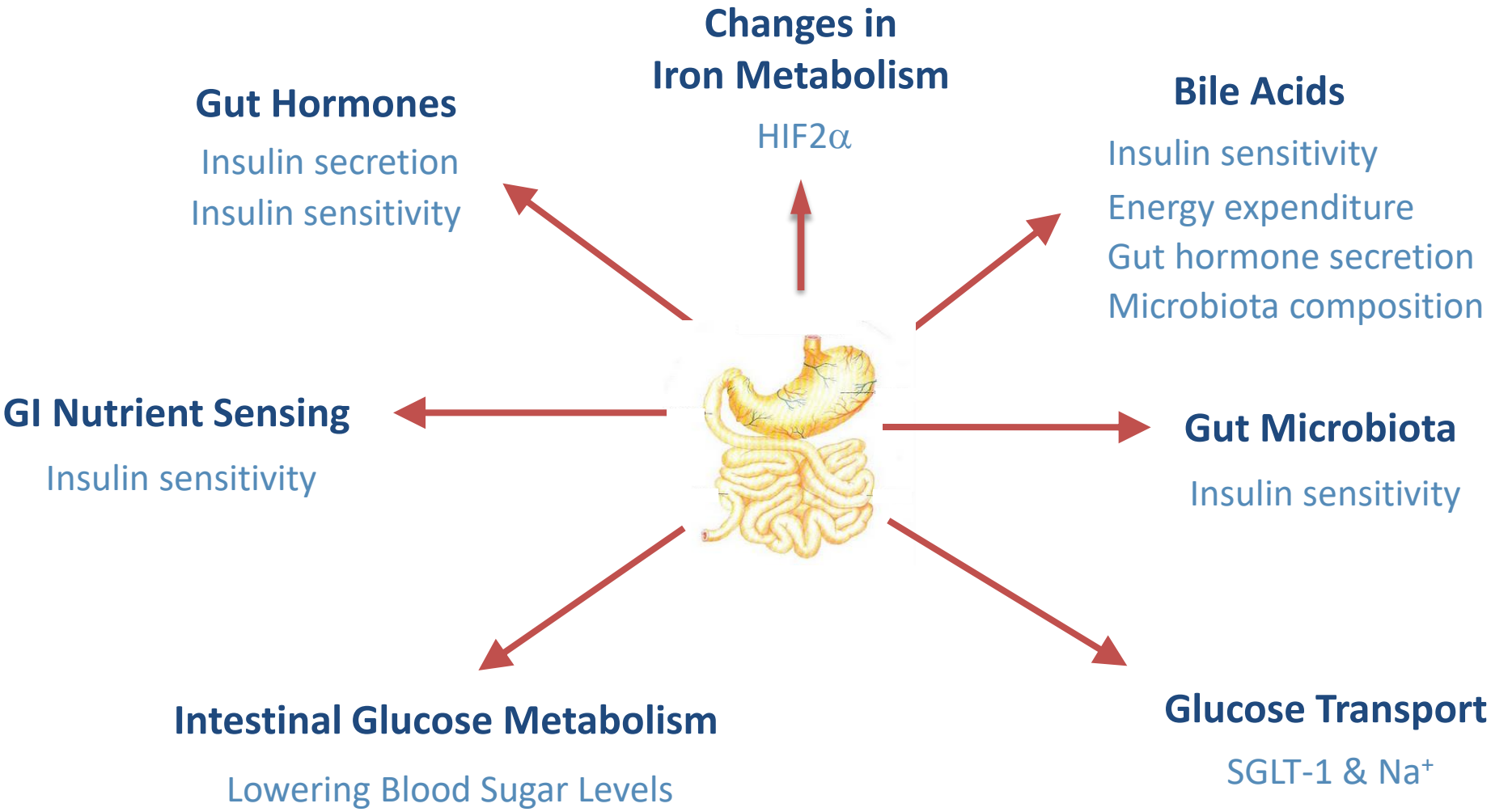
Gastric bypass *versus* best medical treatment for diabetic kidney disease: 5 years follow up of a single-centre open label randomised controlled trial

Ricardo V. Cohen,[a,*] Tiago Veiga Pereira,[b,c] Cristina Mamédio Aboud,[a] Tarissa Beatrice Zanata Petry,[a] José Luis Lopes Correa,[a] Carlos Aurélio Schiavon,[d] Carlos Eduardo Pompilio,[d] Fernando Nogueira Queiroz Pechy,[a] Ana Carolina Calmon da Costa Silva,[a] Lívia Porto Cunha da Silveira,[a] Pedro Paulo de Paris Caravatto,[a] Helio Halpern,[a] Frederico de Lima Jacy Monteiro,[a] Bruno da Costa Martins,[a] Rogerio Kuga,[a] Thais Mantovani Sarian Palumbo,[a] Allon N. Friedman,[e] and Carel W. le Roux[f,g]

The Lancet Eclin , online Nov 11,2022

Outperforms the medical Tx

Mechanisms of Metabolic Surgery



Complications and mortality continuous decrease

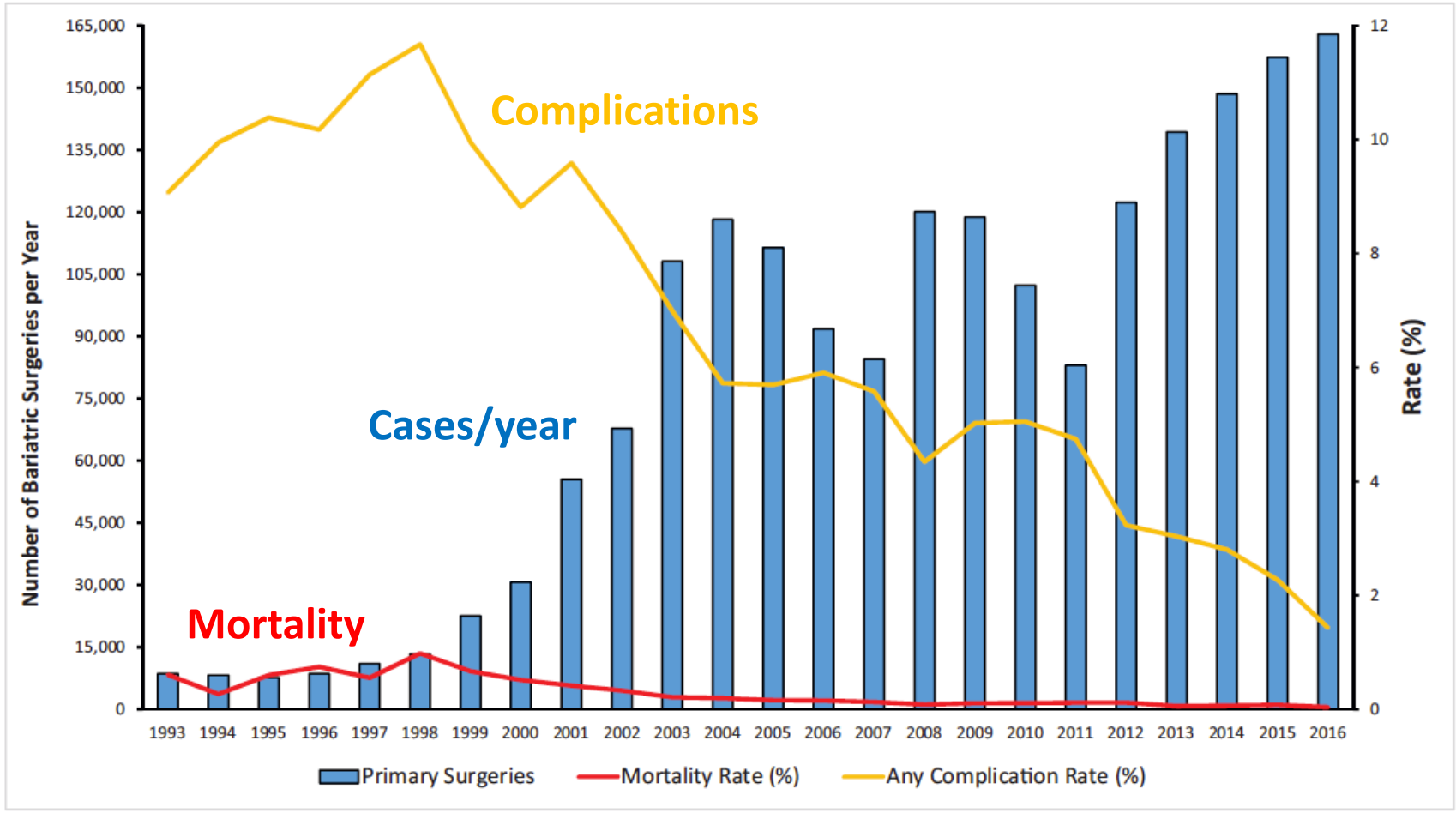


FIGURE 2. Number of inpatient primary bariatric surgery procedures and initial admission complication and mortality rates in the United States from 1993 to 2016.

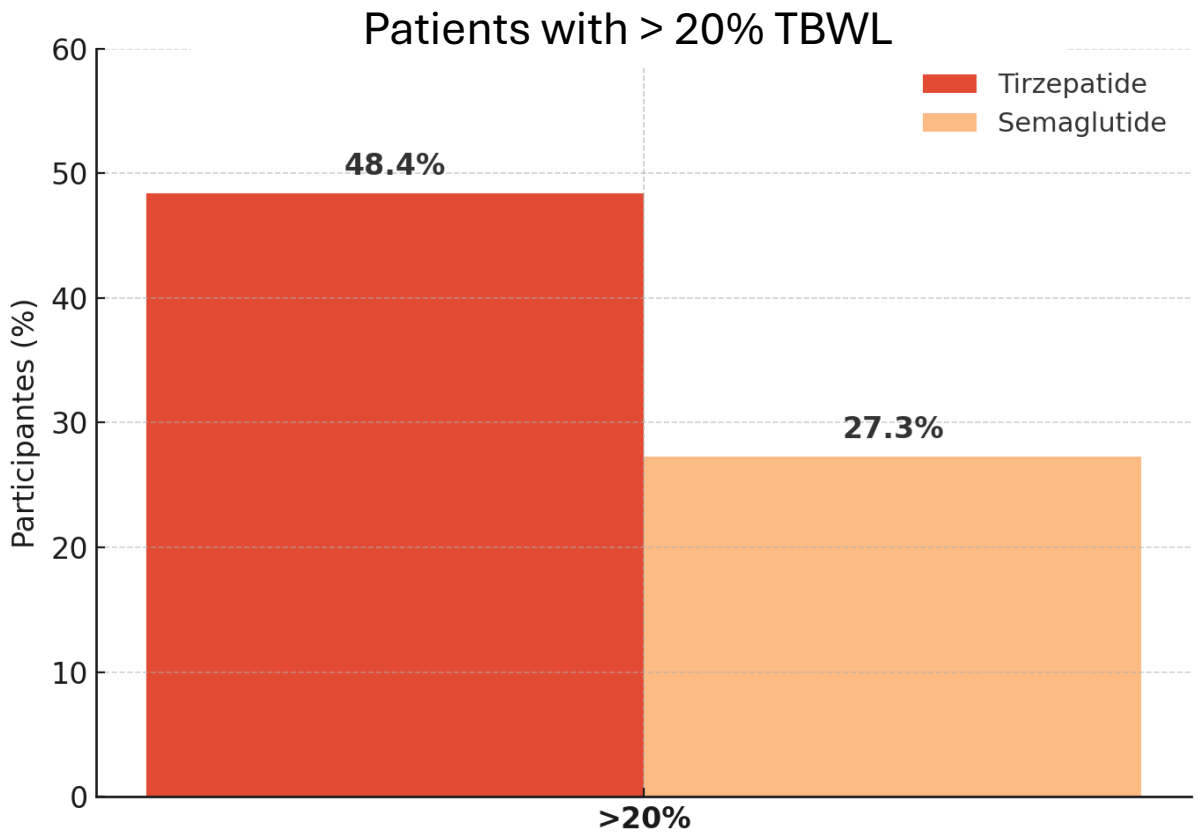
The NEW ENGLAND JOURNAL of MEDICINE

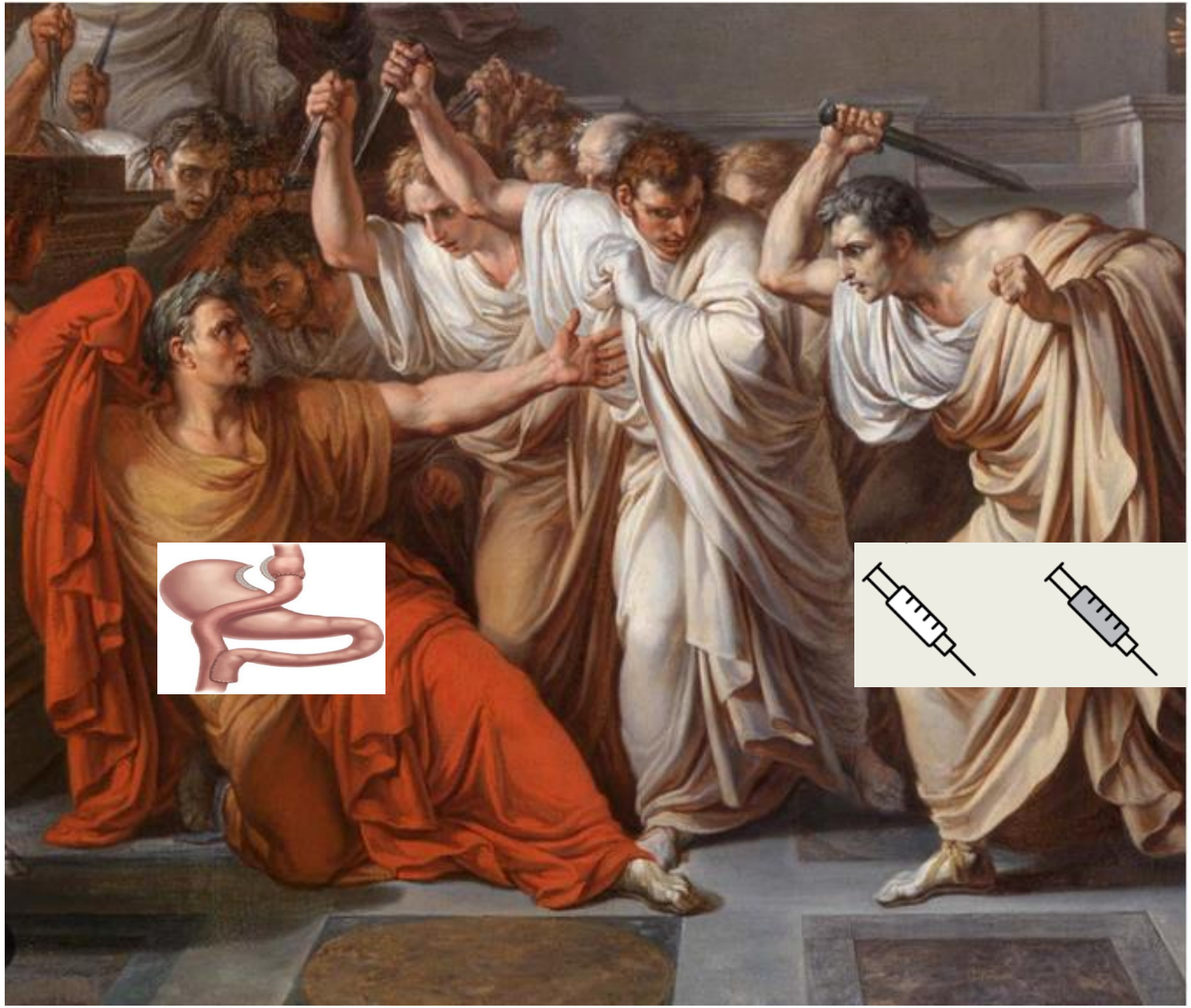
ORIGINAL ARTICLE

Tirzepatide as Compared with Semaglutide for the Treatment of Obesity

Louis J. Aronne, M.D.,[1] Deborah Bade Horn, D.O.,[2]
Carel W. le Roux, M.D., Ph.D.,[3,4] Wayne Ho, M.D.,[5,6] Beverly L. Falcon, Ph.D.,[7]
Elisa Gomez Valderas, M.Sc.,[7] Sagar Das, M.Sc.,[7] Clare J. Lee, M.D., M.H.S.,[7]
Leonard C. Glass, M.D.,[7] Cagri Senyucel, M.D., Ph.D.,[7] and Julia P. Dunn, M.D.,[7]
for the SURMOUNT-5 Trial Investigators*

May /25





The Death of Julius Caesar (1806) by Vincenzo Camuccini in the National Museum of Capodimonte, in Naples

Ann Intern Med. 2022 October ; 175(10): 1392–1400. doi:10.7326/M21-2941.

First-Line Therapy for Type 2 Diabetes With Sodium–Glucose Cotransporter-2 Inhibitors and Glucagon-Like Peptide-1 Receptor Agonists:

A Cost-Effectiveness Study

ICER= $327 000 per QALY

ICER= $823 000 per QALY.

Above the WTP threshold

To be cost-effective, GLP1 RA should cost under $6 per day

Annals of Internal Medicine

REVIEW

Cost-Effectiveness of Newer Pharmacologic Treatments in Adults With Type 2 Diabetes: A Systematic Review of Cost-Effectiveness Studies for the American College of Physicians

John T. Schousboe, MD, PhD; Adrienne Landsteiner, PhD, MPH; Tyler Drake, MD; Shahnaz Sultan, MD, MHSc; Lisa Langsetmo, PhD; Anjum Kaka, MD; Maylen Anthony, MPH; Charles J. Billington, MD; Caleb Kalinowski, MS; Kristen Ullman, MPH; and Timothy J. Wilt, MD, MPH

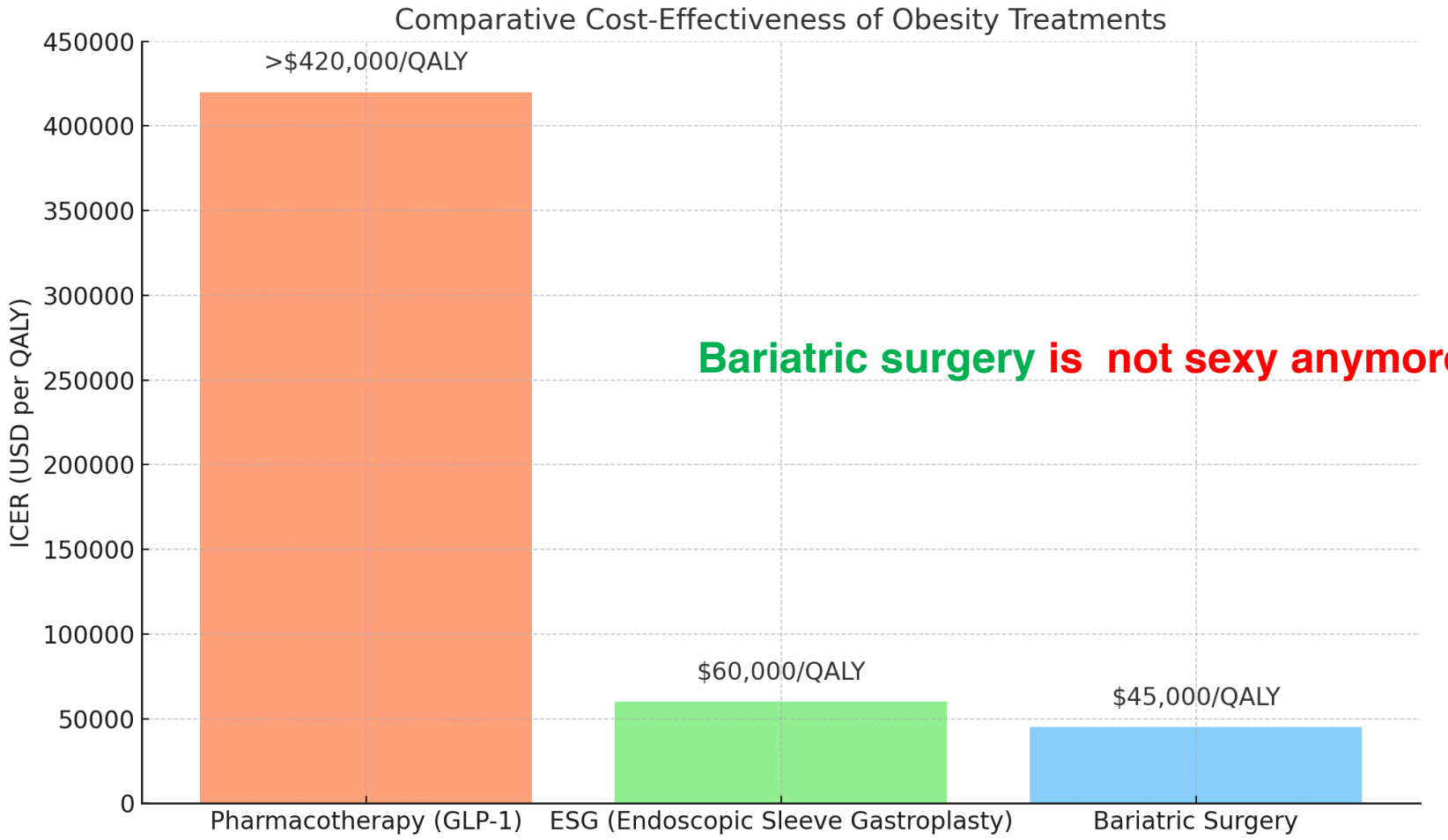
April 19,2024

1st line GLP1 RA, oral or injectable, *had an incremental cost-effectiveness ratio of $1 089 000 per QALY*

WTP threshold

To fit in the WTP of worldwide health systems, we need a decrease in 70% (oral) to 90% (injectables) of GLP1RA cost

Cost/QALY



Bariatric surgery is not sexy anymore, but is cheap

Cohen 2019;Chen, 2023;Kelly,2023;Chousboe,2024; ;Abu dayeh 2024 ;Hwang,2025

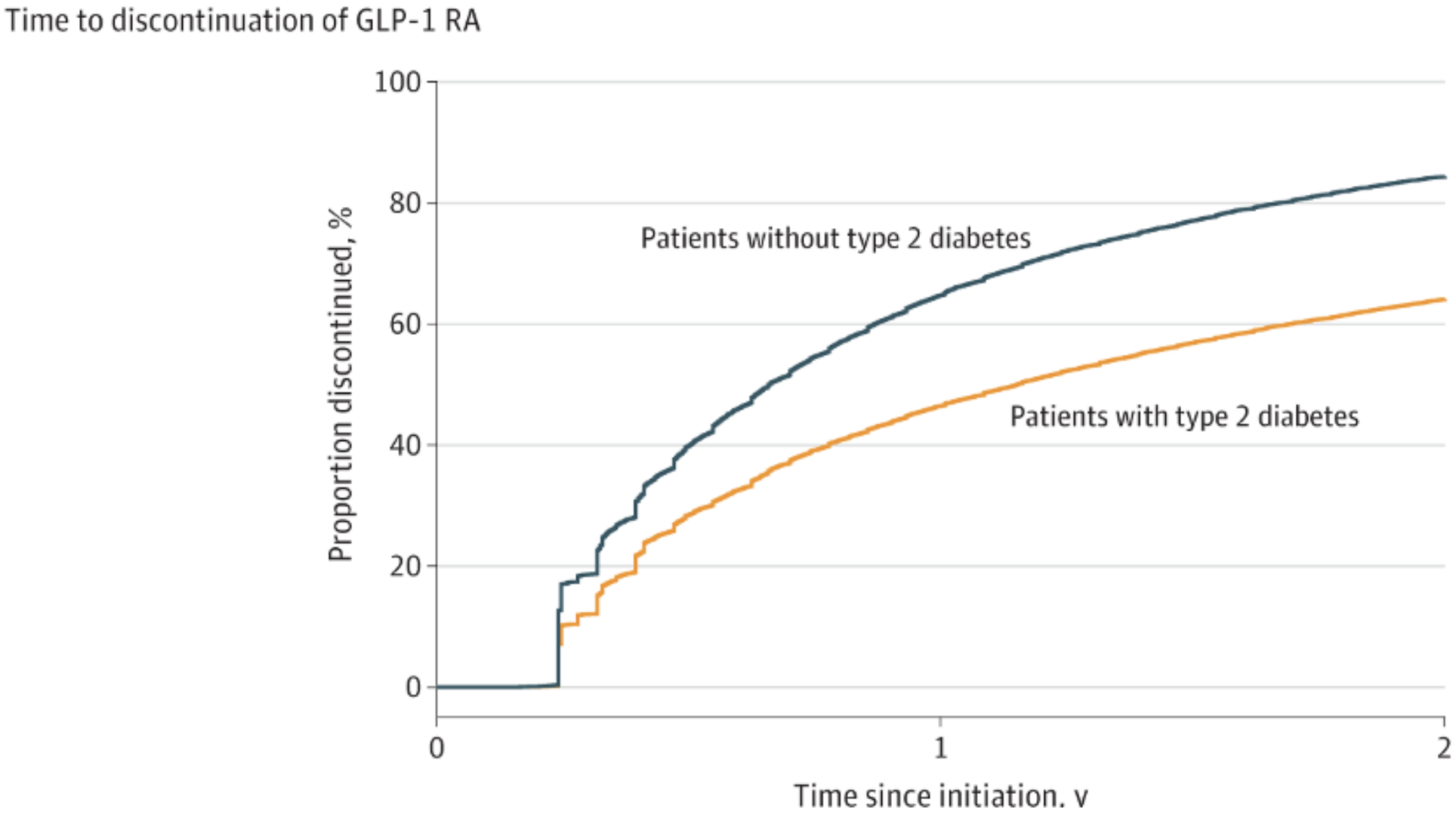
Few individuals continue using GLP-1RAs long-term, despite their proven benefits.

@ 1 year:
25% still on medication

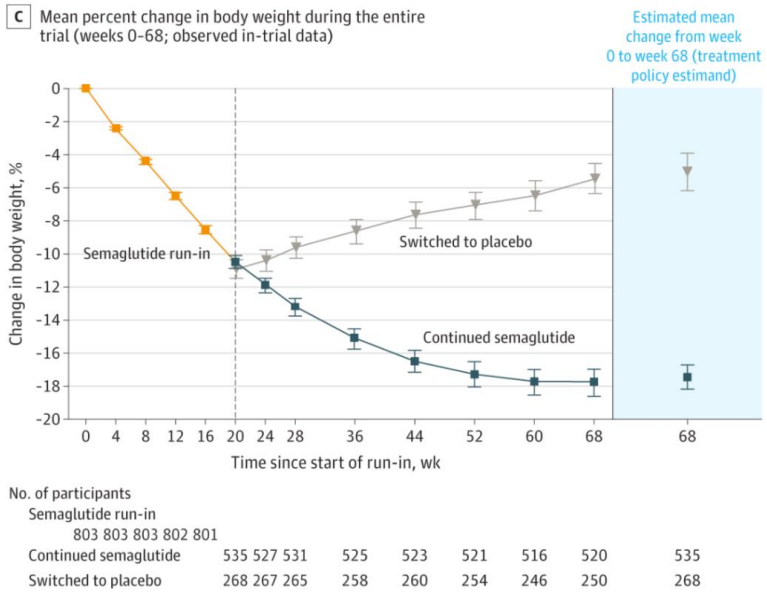
@ 2 years :
15% still on medication

Khan, JAMA, 2024

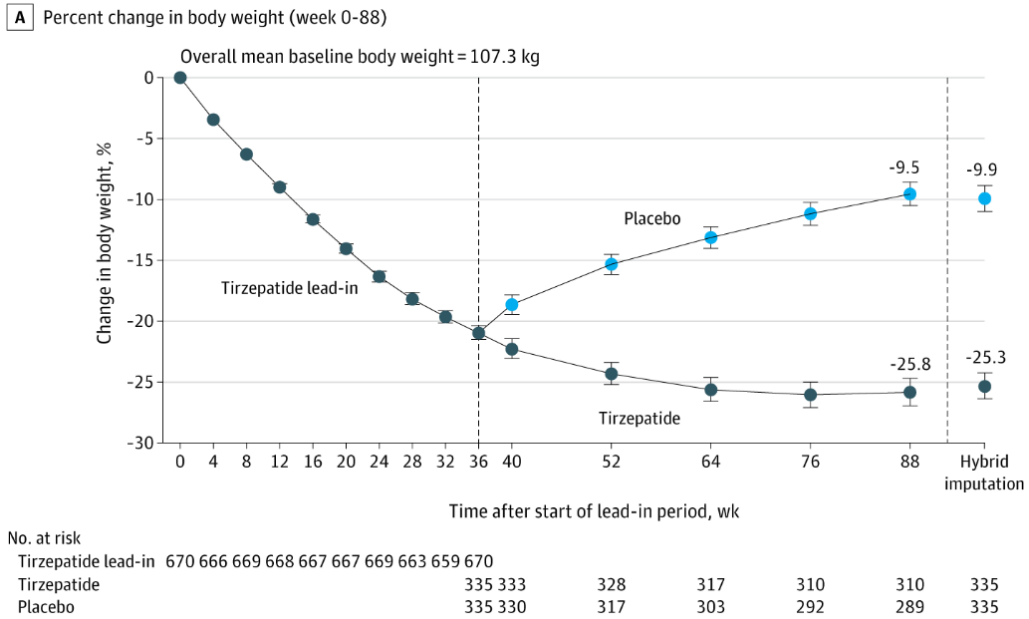
Descontinuation of GLP1RA



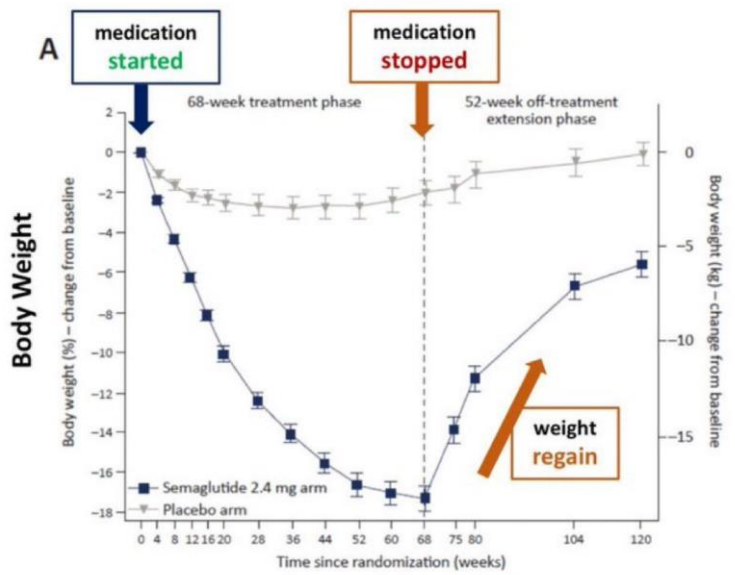
Rodriguez PJ, 2025, JAMA Network Open



Aaron, JAMA,2023



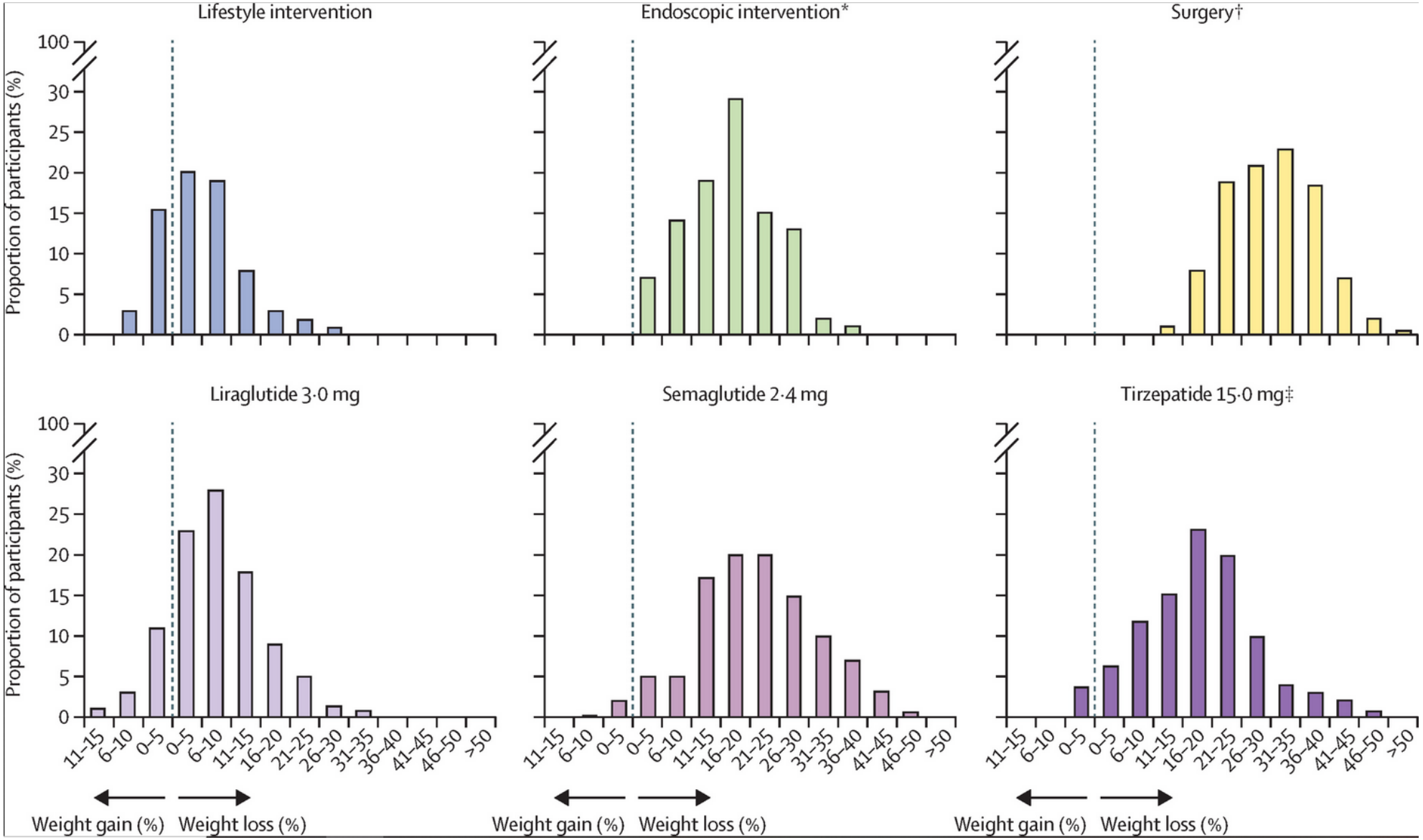
Aronne, NEJM,2023



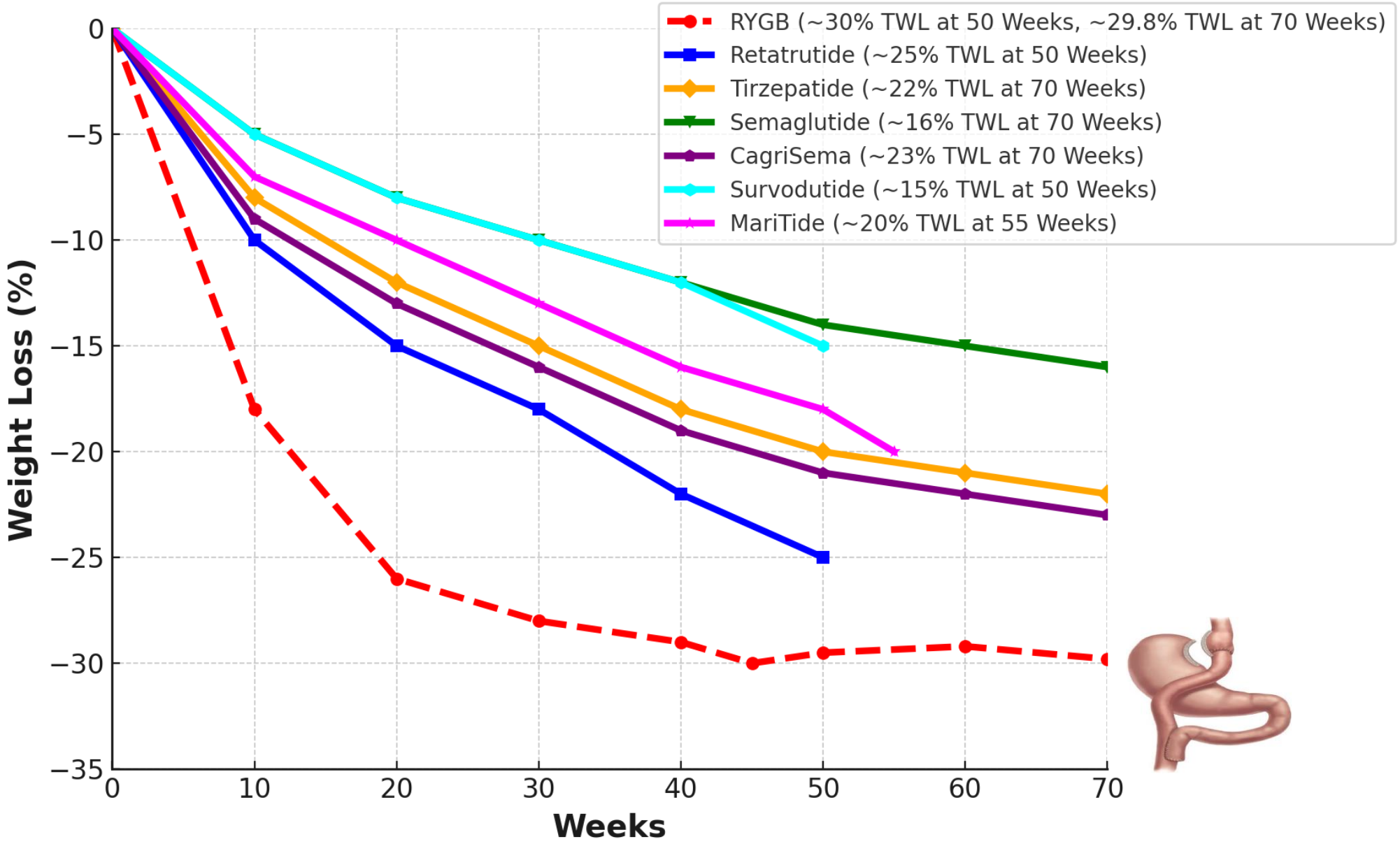
Wilding, 2022

NO!

Heterogeneous response to obesity treatments



Perdomo C, Cohen RV et al, Lancet, 2023



Indirect comparison with Cohen R last 122 cases of RYGB in people with obesity, no T2D

Metabolic surgery in era of modern pharmacotherapy

- ✓ Advancements in CV medications and PCI did not kill CABG
- ✓ Advancements in chemo, radio and immunotherapy did not kill cancer surgery
- ✓ Multifactorial disease, no magic bullet

Candidates in the new obesity treatment era

- Pts preference
- Extreme Obesity BMI > 45-50
- Suboptimal response to med tx
- Intolerance to pharmacotherapy

Candidates in the new obesity treatment era

Contraindications to medicines

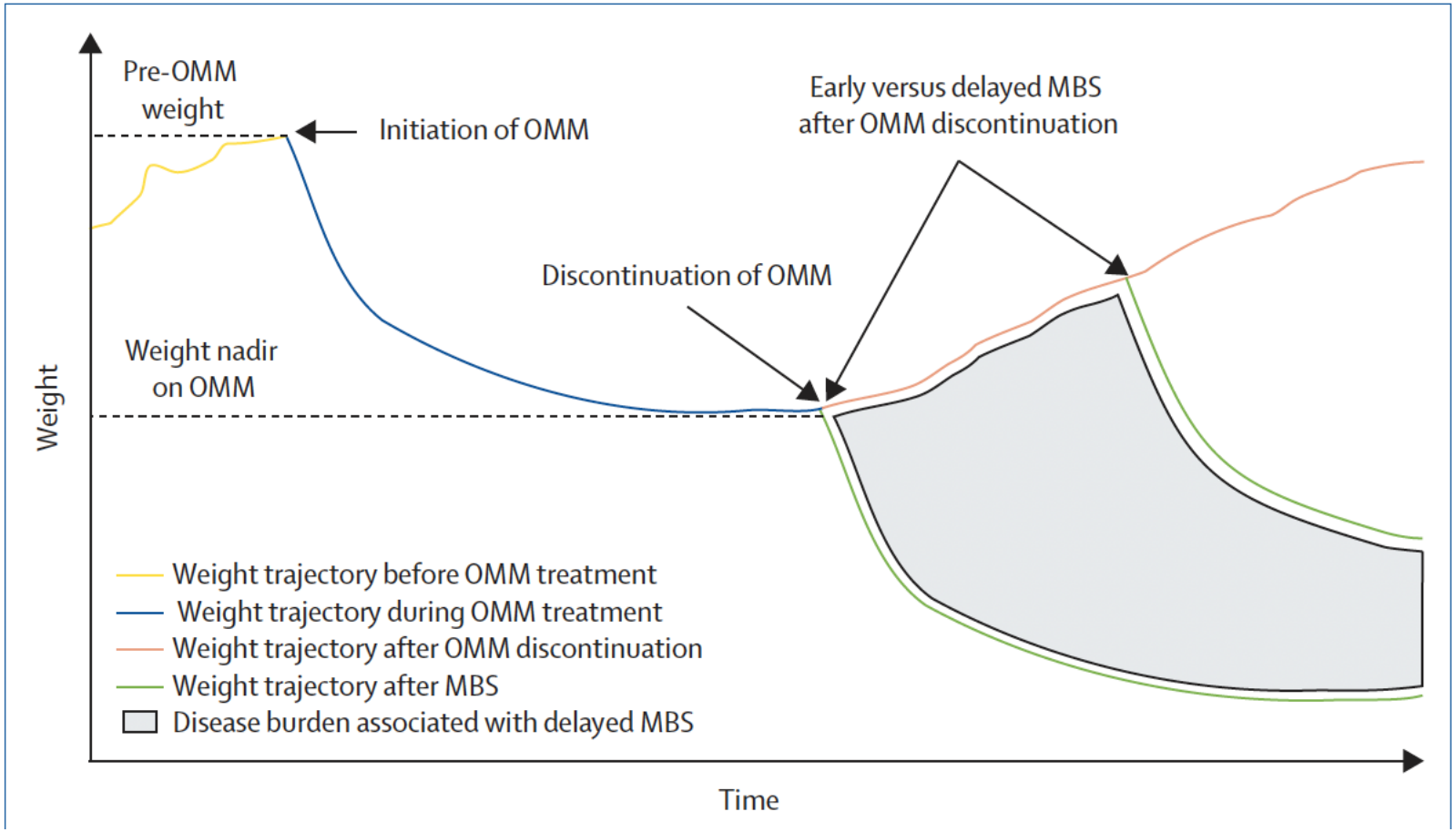
Cost

International Federation for the Surgery of Obesity statement on metabolic bariatric surgery after pharmacotherapy-induced weight loss in clinical obesity

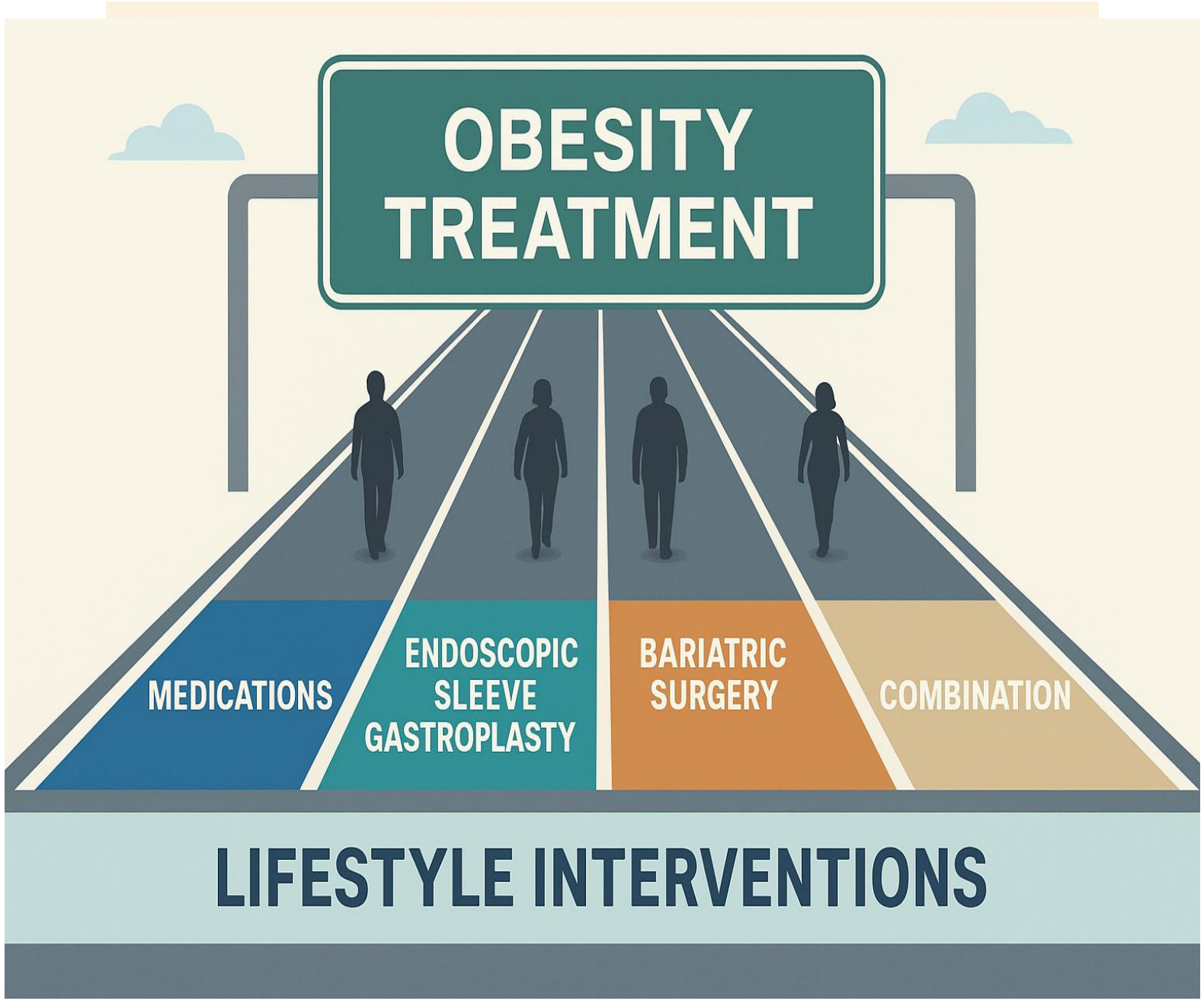
Lancet Diabetes Endocrinol 2(
Published Online
July 22, 2025
https://doi.org/10.1016/
S2213-8587(25)00198-6

Ricardo V Cohen, Gerhard Prager, Carel W le Roux, Ildiko Lingvay, Paulina Salminen
ricardo.cohen@haoc.com.br

- Good outcomes, however:
- Lack of access
- Long-term side effects
- Cost of continued Tx
- "I don't want it anymore"



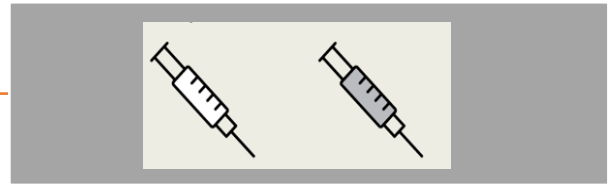
Evidence-based

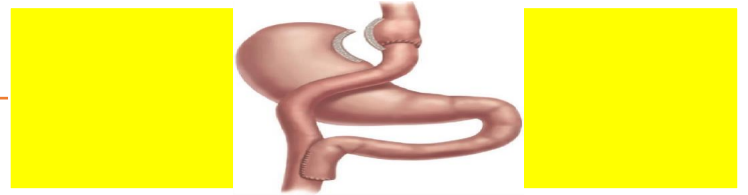


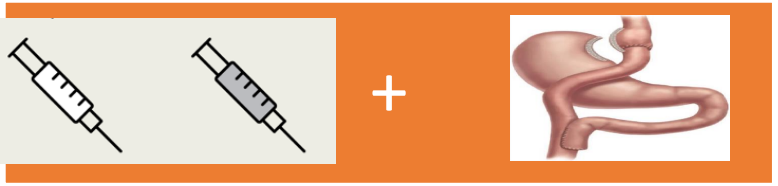
Individualized Strategy

Obesity and complications

Lifestyle interventions







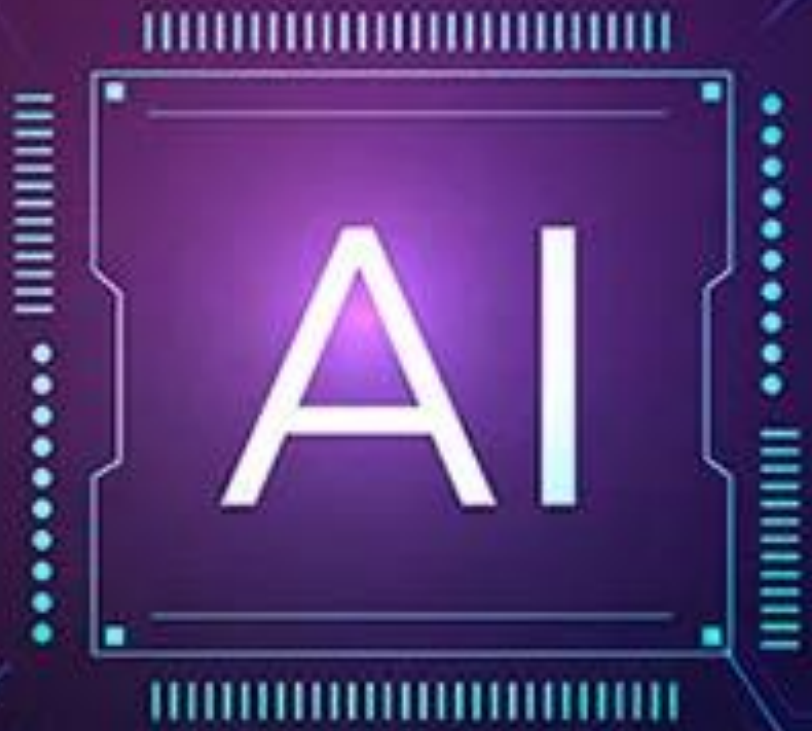

Safe and effective medications
More people seeking for Tx
Suboptimal responders or demand for a definitive strategy
Med+Surg may lead to better outcomes than each strategy alone in selected patients
Better and safe outcomes=MORE DEMAND for including MBS

ricardo.cohen@haoc.com.br

@rvcohen(twitter)

OSWALDO CRUZ
CENTRO ESPECIALIZADO EM **OBESIDADE E DIABETES**

Personalized Treatment Selection



AI Analyzes medical history, exams and past treatments to recommend the best intervention

Predicts which patients will respond best to surgery, pharmacotherapy or combined strategies

AI Risk Stratification:

- Categorizes patients into low-, moderate-, and high-risk groups based on organ dysfunction and priorization to treatments