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GLP-1 Receptor Agonists as a Bridge-to-Surgery in Patients with Morbid Obesity

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Background

- Bariatric surgery is the most effective long-term treatment for morbid obesity
- Preoperative weight loss improves outcomes and reduces surgical risk

- Eisenberg D, Shikora SA, Aarts E, Aminian A, Angrisani L, Cohen RV, De Luca M, Faria SL, Goodpaster KPS, Haddad A, Himpen JM, Kow L, Kurian M, Loi K, Mahawar K, Nimeri A, O'Kane M, Papasavas PK, Ponce J, Pratt JA, Rogers AM, Steele KE, Suter M, Kothari SN. 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. Surg Obes Relat Dis. 2022 Dec;18(12):1345-1356. doi: 10.1016/j.soard.2022.08.013. Epub 2022 Oct 21. PMID: 36280539.

- Mocanu V, Marcil G, Dang JT, Birch DW, Switzer NJ, Karmali S. Preoperative weight loss is linked to improved mortality and leaks following elective bariatric surgery: an analysis of 548,597 patients from 2015-2018. Surg Obes Relat Dis. 2021 Nov;17(11):1846-1853. doi: 10.1016/j.soard.2021.06.021. Epub 2021 Jul 7. PMID: 34330621.



Rationale

Bridge-to-surgery therapy with GLP1 receptor agonists aims to:

- Lower BMI and improve metabolism
- Reduce perioperative complication
(Anastomotic dehiscence rate; Length of hospital stay; morbidity and mortality)
- Reduce surgical technical complexity
(Liver volume; Abdominal wall thickness; Visceral fat)

It might change the surgical indication or the patient's willingness to undergo surgery

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- Roman M, Monaghan A, Serrano GF, Miller D, Pathak S, Lai F, Zaccardi F, Ghanchi A, Khunti K, Davies MJ, Murphy GI. Meta-analysis of the influence of lifestyle changes for preoperative weight loss on surgical outcomes. *Br J Surg.* 2019 Feb;106(3):181-189. doi: 10.1002/bjs.11001. Epub 2018 Oct 17. PMID: 30328098.

- Simancas-Racines D, Reytor-González C, Parise-Vasco JM, Angamarca-Iguago J, García-Velasquez E, Cuzco-Macias AC, Frias-Toral E, Schiavo L. Effectiveness and Safety of Preoperative Nutritional Interventions on Surgical Outcomes in Patients Undergoing Metabolic and Bariatric Surgery: A Systematic Review and Meta-Analysis. *Nutrients.* 2025 Apr 30;17(9):1533. doi: 10.3390/nu17091533. PMID: 40362842; PMCID: PMC12073371.

- Saleh OS, Farag YMK, Medhati P, Tavakkoli A. Impact of Preoperative Weight Loss on 30-Day Complication Rate after Bariatric Surgery. *J Am Coll Surg.* 2024 Jun 1;238(6):993-999. doi: 10.1097/XCS.0000000000001036. Epub 2024 Feb 12. PMID: 38345226.



Study Aim



To evaluate:

- **efficacy and tolerability** of liraglutide, semaglutide, and tirzepatide as preoperative therapy in morbidly obese patients eligible for bariatric surgery
- **How it affect the decision to undergo the procedure**





Study Design

Retrospective observational study

Jan 2024 – Mar 2025

- Weight, BMI, %BWL, %EWL
- Adherence to diet and physical activity
- Adverse effects
- Causes of treatment discontinuation
- Impact on surgical decision



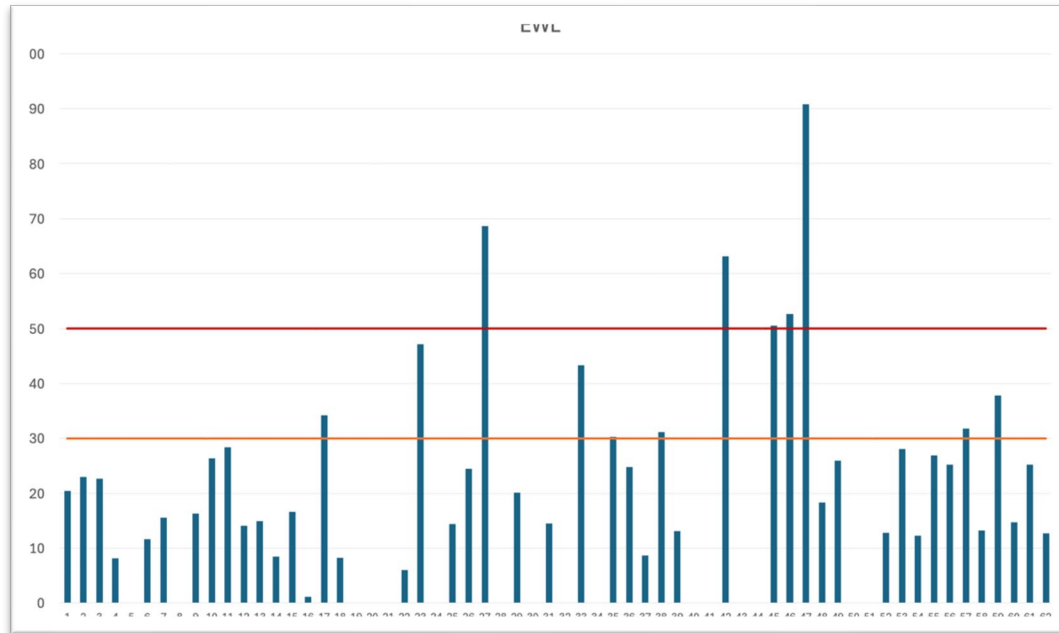
Results

Parameter	Number (%) or Mean (SD/range)
Total number of patients	62
Liraglutide	34 (54.83%)
<u>Semaglutide</u>	13 (20.96%)
<u>Tirzepatide</u>	15 (24.19%)
Treatment duration (weeks)	
Liraglutide	10.7
<u>Semaglutide</u>	18
<u>Tirzepatide</u>	7.1
Overall	11.2
Patients completing treatment	29 (46.65%)
Initial weight (kg)	137.76 ± 38.60
Final weight (kg)	126.13 ± 36.47
Absolute weight change (kg)	11.32 kg (range 0–30 kg)
Body Weight Loss (BWL%)	8.01% (range 0-26.00%)
Initial BMI (kg/m ²)	49.09 ± 11.07
Final BMI (kg/m ²)	44.95 ± 10.65
Excess Weight Loss (EWL%)	18.69% (range 0–90.82%)

62 patients

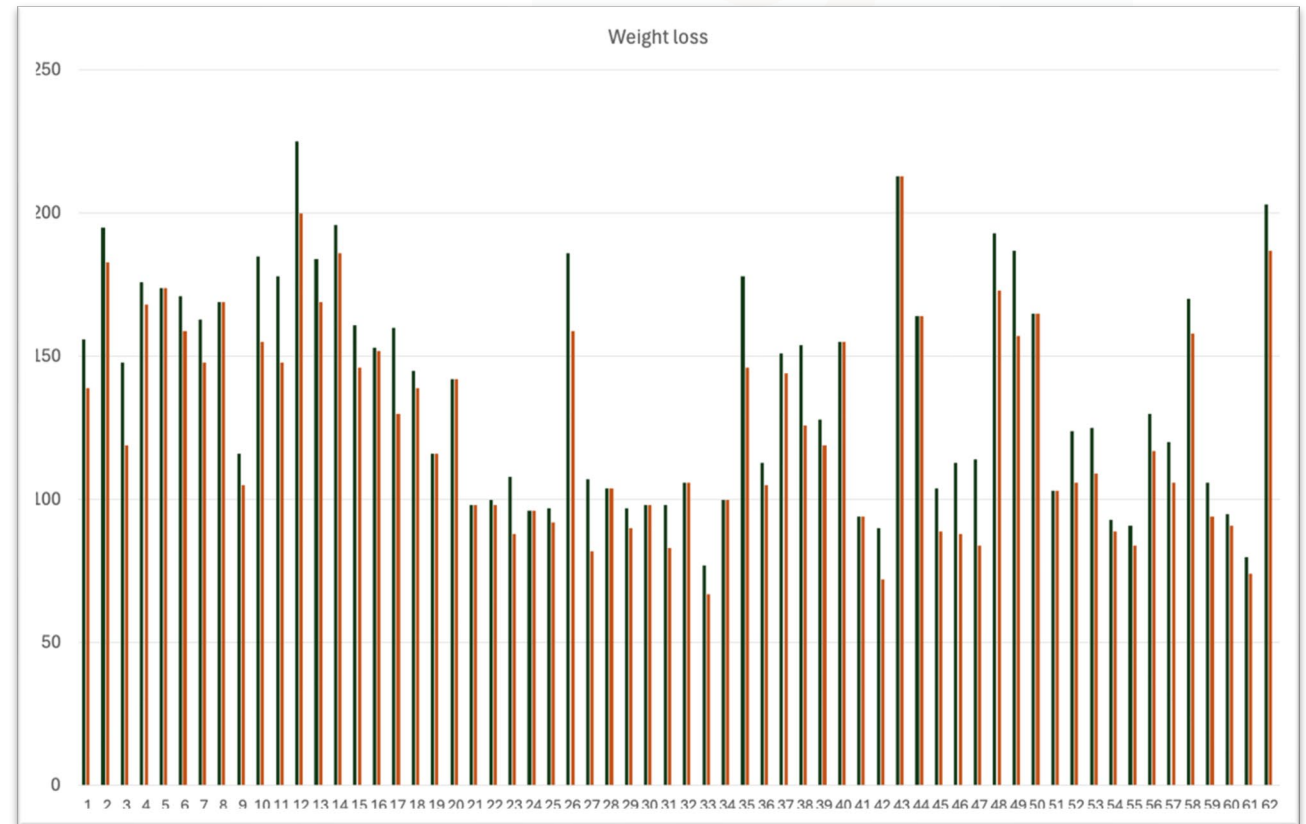
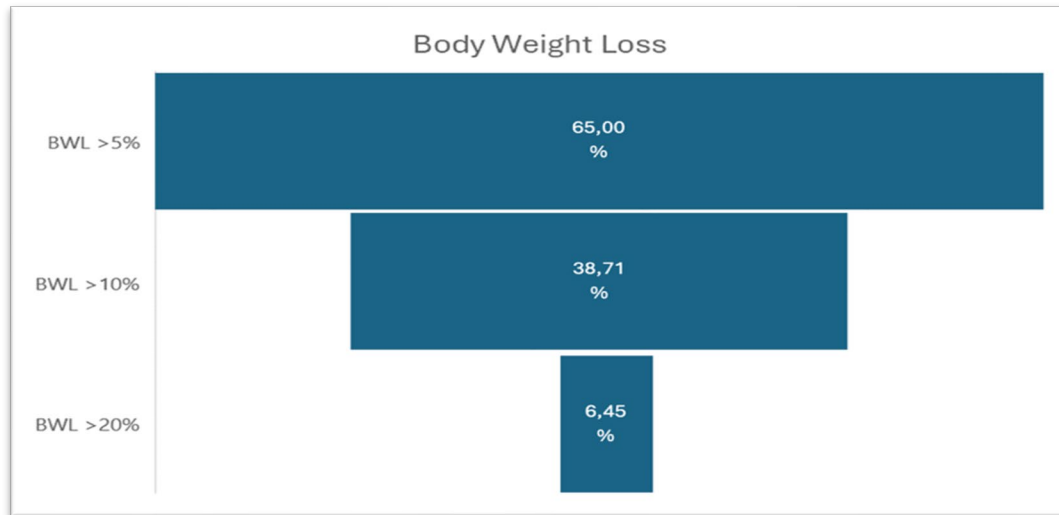
BMI 35–67.9 kg/m²

18–65 years



EWL > 30% 12/62 (19.35%)

EWL > 50% 5/62 (8.06%)



Behavioral Factors

Intervention	Weight loss (kg)	BWL (%)	EWL (%)	BMI Δ (kg/m ²)
Diet				
Adherent	12.04	8.99%	20.8%	4.45
Non-adherent	7.11	4.76%	10.47%	2.21
Physical activity				
Regular	16.86	12.16%	26.69%	5.83
Sedentary	9.55	7.17%	16.16%	3.60

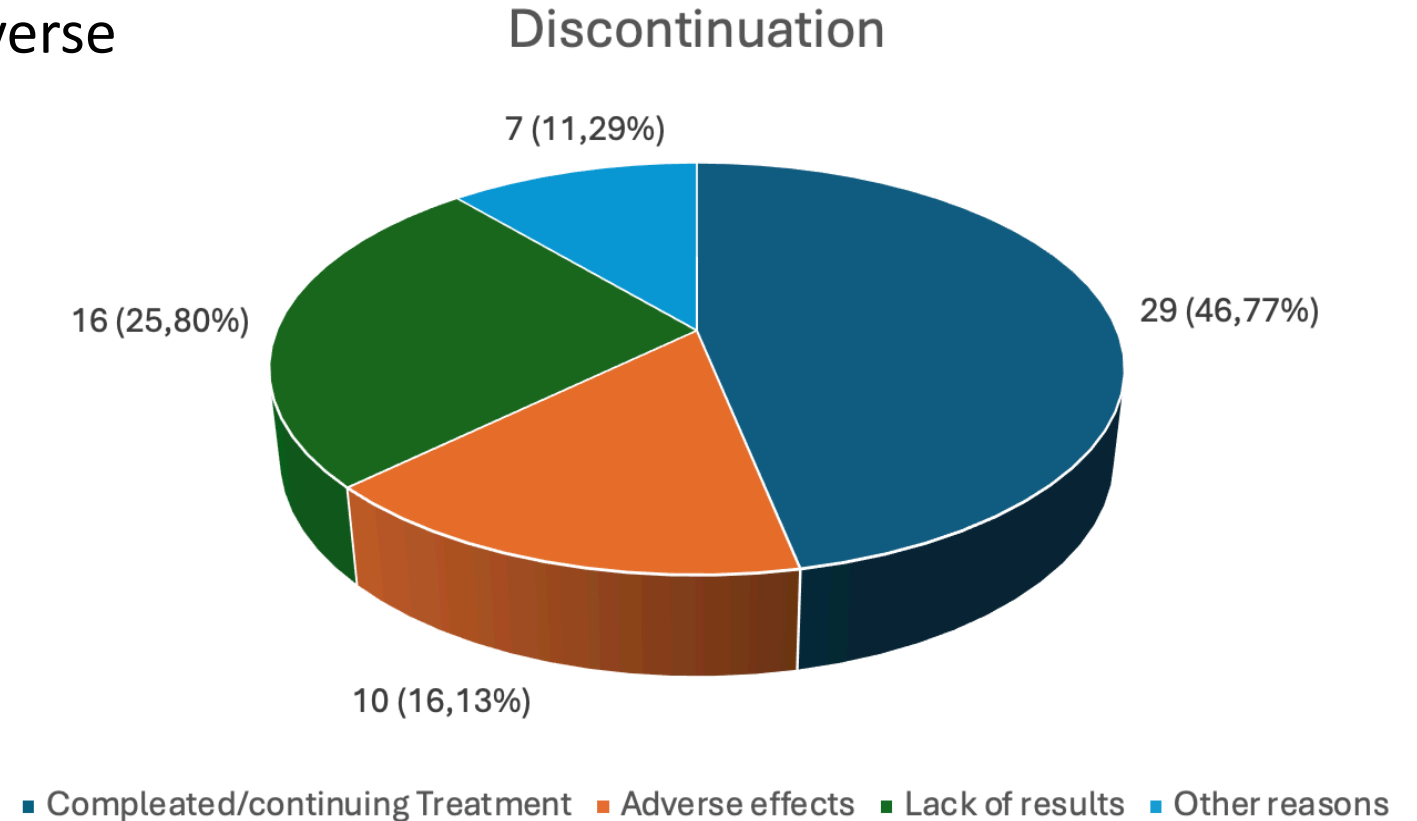
Behavioral adherence significantly amplified pharmacologic effects



Side Effects and Discontinuation

22/62 patients (35,48%) reported adverse effects:

- Nausea/vomiting 9 (14,5%)
- Fatigue 6 (9,6%)
- Diarrhea/costipation 4 (6,45%)
- Headache 4 (6,45%)
- Tachycardia 4 (6,45%)
- Dyspepsia 2 (3,2%)
- Hypotension 1 (1,61%)



Impact on Surgery Decision

- 72,6% (45 patients) decided to undergo surgery:
 - ❖ 32 suspended therapy
 - ❖ 9 reached significative weight loss
 - ❖ 4 still in therapy

- 27.4% (17 patients) delayed or avoided surgery:
 - ❖ 8 achieved metabolic or weight target
 - ❖ 8 chose to continue medical therapy
 - ❖ 1 withdrew



Discussion

Tirzepatide Once Weekly for the Treatment of Obesity

Authors: Ania M. Jastreboff, M.D., Ph.D., Louis J. Aronne, M.D., Nadia N. Ahmad, M.D., M.P.H., Sean Wharton, M.D., Pharm.D., Lisa Connery, M.D., Breno Alves, M.D., Arihiro Kiyosue, M.D., Ph.D., Shuyu Zhang, M.S., Bing Liu, Ph.D., Mathijs C. Bunck, M.D., Ph.D., and Adam Stefanski, M.D., Ph.D., for the SURMOUNT-1 Investigators* [Author Info & Affiliations](#)

Published June 4, 2022 | N Engl J Med 2022;387:205-216 | DOI: 10.1056/NEJMoa2206038 | VOL. 387 NO. 3
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Impact of Treatment with GLP1 Receptor Agonists, Liraglutide 3.0 mg and Semaglutide 1.0 mg, While on a Waiting List for Bariatric Surgery

by **Miguel A. Rubio-Herrera** ^{1,2,*} , **Sara Mera-Carreiro** ¹,
Andrés Sánchez-Pernaute ^{3,4}  and **Ana M. Ramos-Leví** ^{4,†} 

Healthy weight loss maintenance with exercise, GLP-1 receptor agonist, or both combined followed by one year without treatment: a post-treatment analysis of a randomised placebo-controlled trial

[Simon Birk Kjær Jensen](#) ^a · [Martin Bæk Blond](#) ^b · [Rasmus Michael Sandsdal](#) ^a · [Lisa Møller Olsen](#) ^a ·
[Christian Rimer Juhl](#) ^a · [Julie Rehné Lundgren](#) ^a · et al. [Show more](#)

- GLP-1 RAs effectively **reduce preoperative weight** and BMI
- **impacts patients' decisions** regarding acceptance or rejection of the procedure
- **Adherence and multidisciplinary approach** are essential
- Adverse effects of **mild intensity** and well tolerated

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- Wilding JPH, Batterham RL, Calanna S, Davies M, Van Gaal LF, Lingvay I, McGowan BM, Rosenstock J, Tran MT, Wadden TA, Wharton S, Yokote K, Zeuthen N, Kushner RF; STEP 1 Study Group. Once-Weekly Semaglutide in Adults with Overweight or Obesity. N Engl J Med. 2021 Mar 18;384(11):989-1002. doi: 10.1056/NEJMoa2032183. Epub 2021 Feb 10. PMID: 33567185.



Limitations

- Retrospective design
- Small sample size
- Short duration
- No long-term follow-up



Conclusions

GLP-1 receptor agonists are **safe and effective as bridge-to-surgery therapy** and a valid therapeutic alternative.

However, important issues such as **limited accessibility, treatment adherence and long-term maintenance of weight loss** still need to be addressed.

Bariatric surgery continues to represent the mainstay treatment for severe obesity.



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*Thank You
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