

Evaluating weight loss associated with bariatric surgery after liraglutide use: a matched cohort study

Muhammad Faran BMSc¹, Emma O’Callaghan PhD², Karen Barlow BSc¹⁻³, Jean-Éric Tarride PhD⁴, Mehran Anvari MBBS PhD^{1-3,5}, Aristithes Doumouras MD MPH^{2,3,5}

¹Centre for Surgical Invention and Innovation, McMaster University, Hamilton, Ontario, Canada.

²Division of General Surgery, McMaster University, Hamilton, Ontario, Canada.

³Centre for Minimal Access Surgery (CMAS), St. Joseph’s Healthcare, McMaster University, Hamilton, Ontario, Canada.

⁴Department of Health Research Methods, Evidence, and Impact, Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada.

⁵ICES, Toronto, Ontario, Canada.

BACKGROUND: Liraglutide is an obesity medication that regulates blood glucose levels and reduces appetite. Bariatric surgery is the most effective obesity treatment.

RATIONALE: Studies show that liraglutide is an effective adjunct treatment for patients with unsuccessful weight loss (WL) post-bariatric surgery. However, the interaction of liraglutide before bariatric surgery is not well explored. Therefore, we investigated the impact of preoperative liraglutide use on postoperative WL.

METHODS: A retrospective analysis of Ontario Bariatric Registry data was conducted on patients that received a primary bariatric procedure between January 2010 and June 2020. Patients were categorized into two groups: (1) liraglutide naïve – patients that did not take liraglutide pre- or postoperatively; (2) liraglutide users – patients that took liraglutide preoperatively. Patients were 3:1 case-control matched on sex, age, BMI, surgery type, and diabetes.

RESULTS:

Table 1. 1-year postoperative WL outcomes

Variable (Mean ± SD)	Liraglutide Naïve (N=1383)	Liraglutide Users (N=449)	Total (N=1832)	p-value
BMI, kg/m ²	32.73 ± 6.71	33.43 ± 6.34	32.9 ± 6.63	.05
BMI change, kg/m ²	12.48 ± 5.20	11.45 ± 4.47	12.23 ± 5.05	<.001

Table 2. 1-year postoperative odds of WL outcomes by liraglutide usage

WL Outcome	OR (95% CI)	p-value
≥ 20% body weight lost	0.58 (0.44-0.77)	<.001
≥ 25% body weight lost	0.50 (0.39-0.63)	<.001

CONCLUSION: Liraglutide naïve patients had more observed WL and approximately twice the odds of losing ≥ 20 -25% of body weight. However, both groups benefited from bariatric surgery with similar BMIs at 1-year and clinically significant changes in BMI from pre-op to 1-year follow-up.

250/250 words – word count does not include study title, names, or affiliations.

(No financial support)