

EFFECTS OF HETEROZYGOUS VARIANTS IN THE LEPTIN-MELANOCORTIN PATHWAY ON TRANSORAL OUTLET REDUCTION AFTER ROUX-EN-Y GASTRIC BYPASS

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INTRODUCTION

- Mutations in the leptin-melanocortin pathway (LMP) are known contributors to severe obesity.
- Carriers of a heterozygous variants in the LMP have been found to have greater weight regain following Roux-en-Y gastric bypass (RYGB) than non-carriers.
- Transoral outlet reduction (TORe) is a safe endoscopic technique to reduce the size of the gastrojejunal anastomosis aperture, counteracting the weight regain after RYGB.
- We aim to evaluate weight loss outcome of TORe over one year in patients with obesity and with or without heterozygous variants in the LMP.

METHODS

- This is a retrospective case-control study from the Mayo Clinic Biobank who were genotyped for an LMP variant and had RYGB surgery followed by TORe procedure.
- Exclusion criteria: patients with active malignancy, on an anti-obesity medication, or pregnancy
- Patient demographic and medical information were abstracted from the electronic medical records with weight records up to one year after TORe procedure.
- Total body weight loss percentage (TBWL%) at 1, 3, 6, 9 and 12 months was calculated based on baseline weight at TORe procedure.
- All continuous data were summarized as the mean and standard deviation (SD).
- A Wilcoxon 2-sample t-test was conducted to compare TBWL% between groups.

RESULTS

	Carriers N = 4	Non-carriers N = 10	Difference (95% CI)	p-value
A) Demographics and Anthropometrics				
Females, %	100%	90%		0.51
Age at TORe, years	51.0 (5.2)	55.4 (15.3)	-4.4 (-16.4 – 7.5)	0.52
Height, m	1.7 (0.1)	1.7 (0.1)	0.05 (-0.1 – 0.2)	0.40
Weight, kg	118 (25.8)	102.4 (22.1)	15.8 (-22.1 – 53.8)	0.18
BMI, kg/m ²	40.5 (8.7)	37.3 (7.7)	3.2 (-9.7 – 16.0)	0.55
B) % TBWC				
1 month	-9.3 (2.8)	-8.5 (4.0)	-0.8 (-3.3 – 1.7)	0.50
3 months	-7.0 (5.6)	-9.8 (5.6)	2.8 (-5.4 – 11.1)	0.40
6 months	-6.6 (7.2)	-10.0 (6.5)	3.4 (-7.3 – 14.1)	0.35
9 months	-4.4 (5.4)	-9.5 (4.8)	5.0 (-5.8 – 15.9)	0.11
12 months	-12.3 (3.2)	-1.5 (5.9)	10.7 (1.8 – 19.6)	0.03

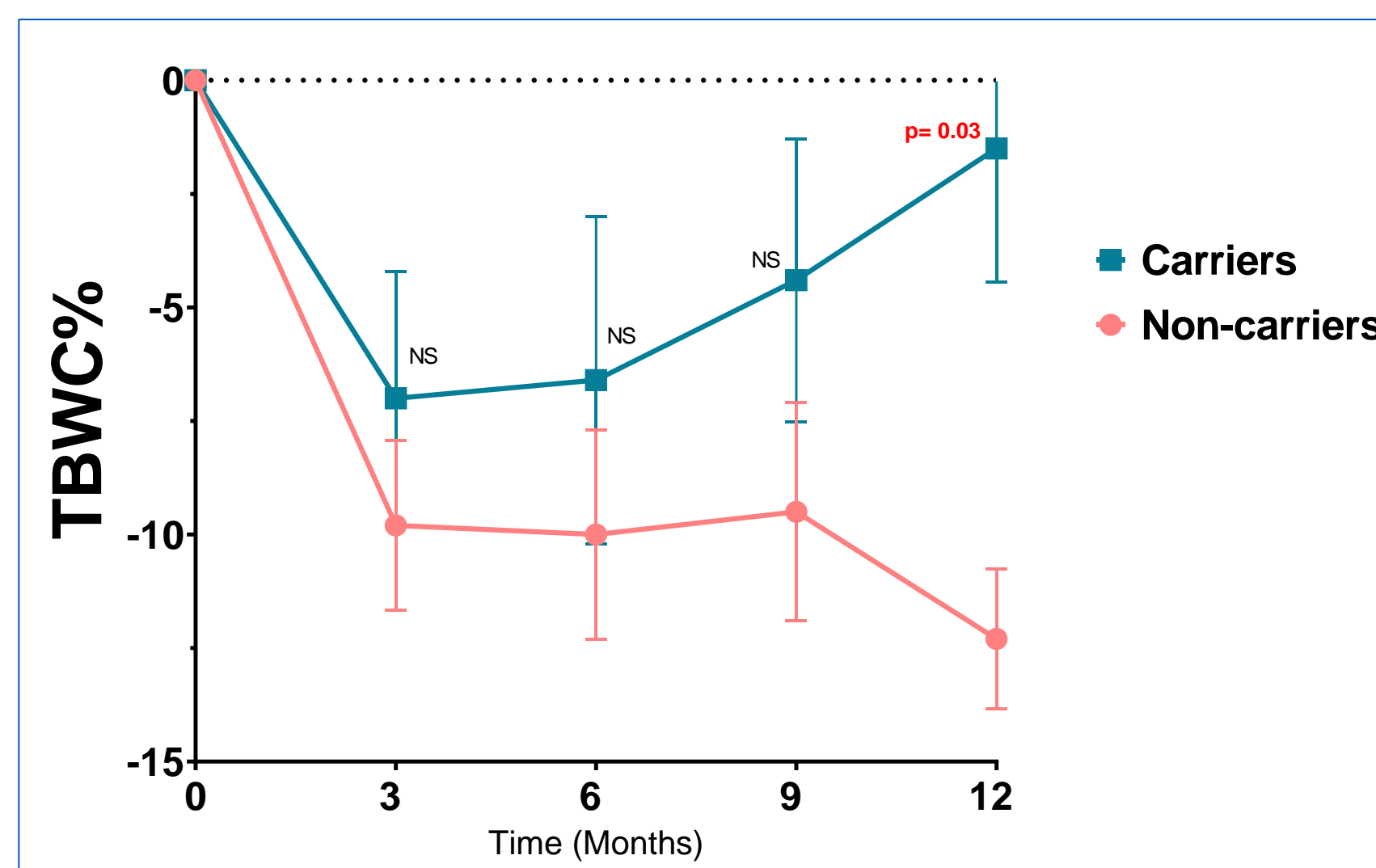


Table 1: Demographics (A) and weight loss outcomes (B) after TORe between patients with LMP gene variants carriers and non-carriers. Values are displayed as means and standard deviation (SD).

Abbreviations: BMI, body mass index; TBWC, total body weight change; TORe, Transoral outlet reduction

Figure 1: TBWC% of carriers and non-carriers groups at 3, 6, 9, and 12 months

RESULTS/DISCUSSION

- A total of 14 patients were included in the analysis.
- Four patients (mean age 51.0 [5.2] years, 100% females, body mass index [BMI] 40.5 [8.7] kg/m²) with LMP variant and 10 non-carriers (age 55.4 [15.3] years, 90% females, BMI 37.3 [7.7] kg/m²)
- There were no baseline differences between carriers and non-carriers at time of the TORe procedure (**Table 1A**)
- TBWL% was lower in carrier patients after TORe compared to non-carriers at 1, 3, 6, and 9 months.
- TBWL% was lower and achieved significance at one year follow-up (1.6%) in carriers vs. (12.3%) in non-carriers (p=0.03) (**Table 1B, figure 1**).
- Patients with a LMP variant and that underwent RYGB showed decreased weight loss after undergoing TORe.
- Further and larger studies are needed to comprehend the effect of TORe on patients with LMP variants.

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