CO218

Semaglutide Weight Outcomes Among Patients With Metabolic Dysfunction-Associated Steatotic Liver Disease in a Real-World Setting

Samantha Clark[1], Dominic Nunag[1], Matthew Davis[1], Arushi Chadha[1], Nipun Atreja[2], Blake Thomas[2], Francis Lobo[2]

[1]Medicus Economics, LLC, Milton, United States, [2]Madrigal Pharmaceuticals, Inc., West Conshohocken, United States

INTRODUCTION

- Metabolic dysfunction-associated steatotic liver disease (MASLD) is estimated to affect over 83 million people in the United States.[1-2]
- MASLD is often precipitated by obesity and type 2 diabetes (T2D), making many patients eligible for semaglutide treatment.
- In the STEP 1 clinical trial, subcutaneous (SC) semaglutide 2.4 mg treatment in combination with lifestyle changes was associated with an average reduction in body weight of 14.9% among participants with BMI ≥27 kg/m² and a weight-related comorbidity or obesity (BMI ≥30 kg/m²).[3]
- While trial results are promising, evidence on real-world medication use and effectiveness in the MASLD patient population is limited.

OBJECTIVES

- To evaluate real-world weight-loss outcomes among patients with MASLD starting SC semaglutide for an approved indication.

METHODS

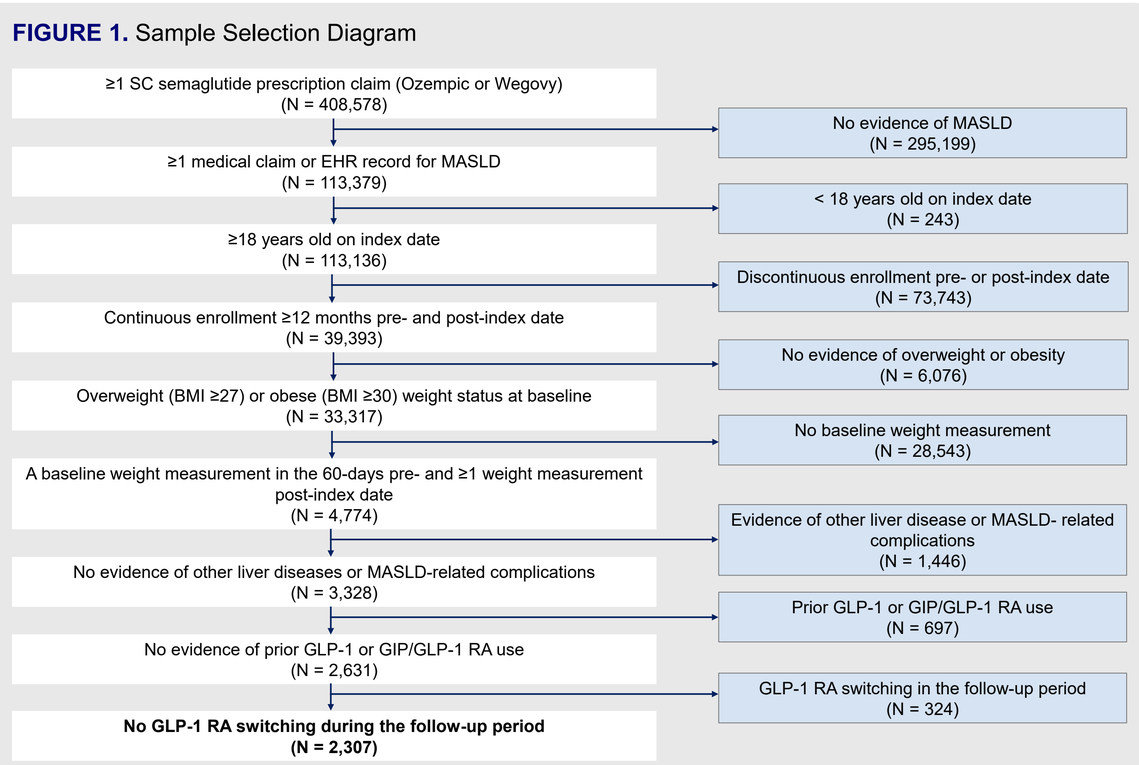
Study Design and Setting

- A descriptive analysis was conducted using Optum Market Clarity data from December 5, 2016, through September 30, 2024, with cohort entry starting on December 5, 2017.
- Overweight (defined here as BMI ≥27 kg/m²) and obese (BMI ≥30 kg/m²) patients with MASLD initiating SC semaglutide were included. Weight change was assessed in the 12 months following the first observed SC semaglutide dispensation (index date).
- The 12-month period preceding the index date was used for sample selection (Figure 1), covariate assessment, and baseline weight measurement (closest value ≤60 days pre-index).
- Medication use (titration and discontinuation) was defined prior to the latest observed weight measurement.
- Switching between branded versions of SC semaglutide was allowed.

Study Measures

- Body weight: Absolute and percentage weight change from baseline to the latest observed measurement within 12 months from the index date.
- Weight loss ≥10%: The proportion of patients achieving a reduction in body weight from baseline of at least 10%.
- Titration and Persistence: Patients were grouped into the following categories based on SC semaglutide titration (defined here as reaching a 2.0 mg or 2.4 mg dose) and persistence (no gaps in medication coverage ≥45-days) over the follow-up period:
  - No titration or persistence
  - No titration with persistence
  - Titration with no persistence
  - Titration with persistence

FIGURE 1. Sample Selection Diagram



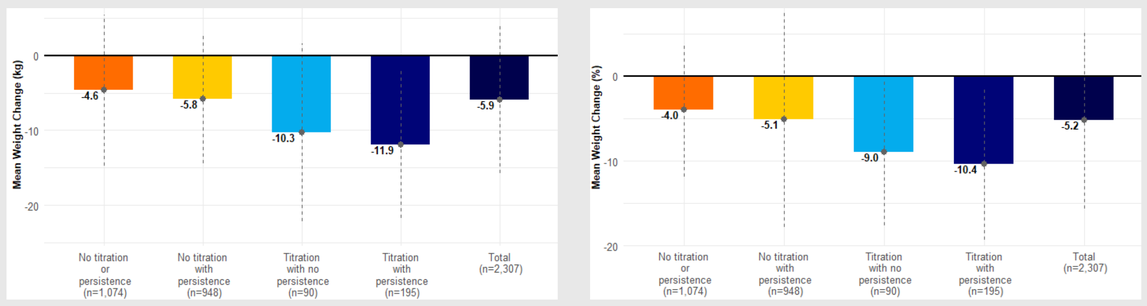
RESULTS

- Almost half (46.6%; n = 1,074) of the 2,307 patients in the final sample did not titrate or remain persistent prior to their latest weight measurement. Patients who did not titrate but remained persistent, titrated without persistence, and titrated and remained persistent comprised 41.1% (n = 948), 3.9% (n = 90), and 8.5% (n = 195) of the sample, respectively.
- Patients across groups were predominantly female (>59%) and Caucasian (>81%), with the proportion of patients with T2D varying from 48.2% among patients who titrated and remained persistent to 83.1% in patients who did not titrate but remained persistent (Table 1).
- Mean (standard deviation) baseline weight and BMI were 110.4 (24.8) kg and 38.9 (8.0) kg/m2, respectively, and mean (SD) time to latest follow-up weight measurement was 38.4 (13.5) weeks.

TABLE 1. Patient Characteristics

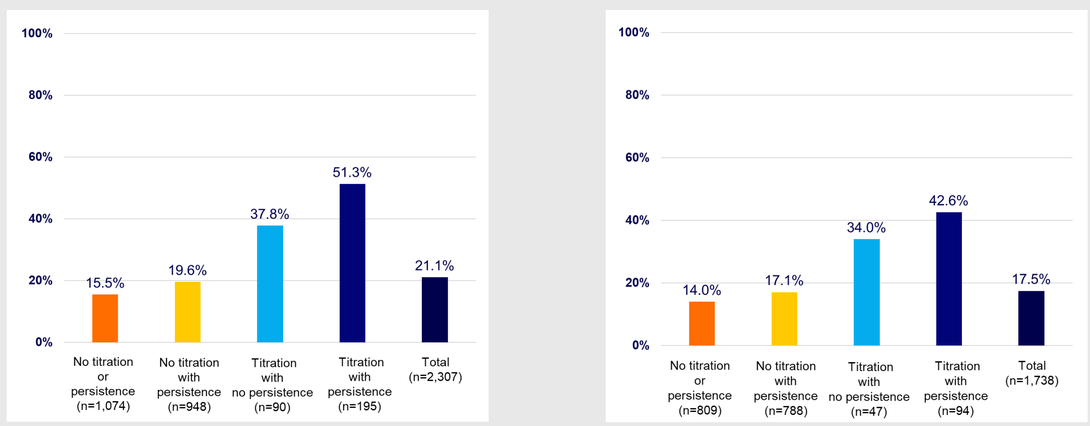
	Overall (N = 2,307)	No titration or persistence (N = 1,074)	No titration with persistence (N = 948)	Titration with no persistence (N = 90)	Titration with persistence (N = 195)
Age					
Mean (SD)	53.4 (11.7)	53.8 (12.4)	53.8 (10.7)	50.5 (11.7)	50.7 (11.8)
Median (IQR)	54.0 (46.0, 61.0)	55.0 (46.0, 62.0)	54.0 (48.0, 61.0)	51.0 (43.0, 58.0)	51.0 (43.0, 59.0)
Gender, n (%)					
Female	1,440 (62.4)	669 (62.3)	595 (62.8)	60 (66.7)	116 (59.5)
Male	857 (37.1)	402 (37.4)	347 (36.6)	29 (32.2)	79 (40.5)
Unknown	10 (0.4)	3 (0.3)	6 (0.6)	1 (1.1)	0 (0.0)
Race, n (%)					
African American	196 (8.5)	92 (8.6)	84 (8.9)	8 (8.9)	12 (6.2)
Asian	52 (2.3)	21 (2.0)	26 (2.7)	3 (3.3)	2 (1.0)
Caucasian	1,894 (82.1)	883 (82.2)	773 (81.5)	74 (82.2)	164 (84.1)
Other/Unknown	165 (7.2)	78 (7.3)	65 (6.9)	5 (5.6)	17 (8.7)
Ethnicity, n (%)					
Hispanic	224 (9.7)	111 (10.3)	90 (9.5)	8 (8.9)	15 (7.7)
Not Hispanic	1,981 (85.9)	918 (85.5)	818 (86.3)	78 (86.7)	167 (85.6)
Unknown	102 (4.4)	45 (4.2)	40 (4.2)	4 (4.4)	13 (6.7)
Payer Type, n (%)					
Commercial	1,532 (66.4)	677 (63.0)	650 (68.6)	65 (72.2)	140 (71.8)
Medicaid	243 (10.5)	117 (10.9)	106 (11.2)	9 (10.0)	11 (5.6)
Medicare	528 (22.9)	278 (25.9)	190 (20.0)	16 (17.8)	44 (22.6)
Unknown	4 (0.2)	2 (0.2)	2 (0.2)	0 (0.0)	0 (0.0)
Weight [kg]					
Mean (SD)	110.4 (24.8)	110.3 (25.1)	109.4 (23.6)	116.1 (30.7)	113.5 (25.1)
Median (IQR)	107.2 (92.8, 124.9)	107.9 (92.4, 124.6)	105.5 (92.5, 123.4)	110.3 (97.5, 129.7)	111.1 (95.6, 130.5)
BMI					
Mean (SD)	38.9 (8.0)	38.9 (8.2)	38.5 (7.6)	40.7 (9.1)	39.4 (8.0)
Median (IQR)	37.6 (33.2, 42.9)	37.6 (33.2, 43.0)	37.3 (32.9, 42.3)	38.6 (34.9, 44.6)	38.1 (33.8, 43.5)
Obesity, n (%)					
Yes	2,181 (94.5)	1,011 (94.1)	893 (94.2)	87 (96.7)	190 (97.4)
No	126 (5.5)	63 (5.9)	55 (5.8)	3 (3.3)	5 (2.6)
T2D, n (%)					
Yes	1,738 (75.3)	809 (75.3)	788 (83.1)	47 (52.2)	94 (48.2)
No	569 (24.7)	265 (24.7)	160 (16.9)	43 (47.8)	101 (51.8)

FIGURE 2. Absolute and Percentage Mean Weight Change



- Average weight loss from baseline was 5.2% overall, ranging from 4.0% in patients who neither titrated nor remained persistent to 10.4% in patients who titrated and remained persistent (Figure 2).
- In the overall sample, only 21.1% of patients achieved a reduction in body weight of at least 10% from baseline, with the largest proportion of patients in the titration with persistence group (51.3%) reaching this threshold (Figure 3).
- Patients with type 2 diabetes were less likely to achieve a ≥10% reduction in body weight from baseline, with only 17.5% meeting this target. Consistent with the overall sample, those who both titrated and remained persistent were the most likely to attain this level of weight loss.
- The average SC semaglutide dose per week over the follow-up period was 0.54 mg, with a modal dose of 0.5 mg.

FIGURE 3. Patients Achieving Weight loss ≥10%



Overall Sample ***Type 2 Diabetes Patients***

CONCLUSION

- **In this real-world study, nearly half of patients did not titrate or remain persistent, both of which were associated with limited weight reduction benefits.**
- **Findings suggest a lack of alignment between semaglutide trial results and weight-related outcomes for MASLD patients in clinical practice.**
- **Key limitations include a reliance on pharmacy claims to measure medication use, inability to measure weight and assess weight change at standard follow-up times, limited generalizability to the Optum population with electronic health record data, and an inability to capture compounded semaglutide or fills outside insurance coverage.**

ABBREVIATIONS

BMI: Body mass index; GIP: Glucose-dependent insulinotropic polypeptide; GLP-1: Glucagon-like peptide-1; IQR: Interquartile range; MASH: Metabolic dysfunction-associated steatohepatitis; MASLD: Metabolic dysfunction-associated steatotic liver disease; SC: Subcutaneous; SD: Standard deviation; T2D: Type 2 diabetes

DISCLOSURES AND ACKNOWLEDGEMENTS

- AC, AM, DN, SC and MD are all employees of Medicus Economics, LLC
- NA, BT and FL are all employees of Madrigal Pharmaceuticals

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