Real-World Semaglutide Treatment Patterns among Patients with MASH in England: An Analysis of Primary Care Prescription Data

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OBJECTIVES

- Metabolic dysfunction–associated steatotic liver disease (MASLD), and its progressive form, metabolic dysfunction–associated steatohepatitis (MASH), are major causes of chronic liver disease and liver-related morbidity and mortality worldwide.[1]
- At the time of the analysis, no MASH-specific pharmacologic therapies were approved in England, however, resmetirom, a liver therapy, has been granted conditional marketing authorization in the European Union.[2,3]
- Furthermore, ongoing clinical trials are investigating semaglutide, a glucagon-like peptide-1 (GLP-1) receptor agonist, as a potential therapy.[4]
- This study aimed to describe real-world semaglutide prescription patterns among patients with MASH in England.

METHODS

Study design and data source

- This retrospective analysis analyzed primary care prescription data from Prescription Episodes Statistics (PES) linked to hospital data from Hospital Episode Statistics (HES) from June 2020 to May 2025.
- While PES includes prescription data from primary care, HES contains details about admissions as well as outpatient appointments within the National Health Service (NHS) in England.[5]

Inclusion and exclusion criteria

- Adults (≥18 years) prescribed any dose of semaglutide (based on British National Formulary codes) between June 2021 and November 2024 were identified. Thus, we allowed for a pre-index period of at least one year and a follow-up period of at least six months.
- The index date was defined as the first semaglutide prescription, whereas prescriptions were only available on a monthly basis in the database.
- Patients with prior GLP-1 receptor agonist use, advanced liver disease (e.g., liver transplant), or other exclusionary comorbidities (e.g., viral hepatitis) were excluded.
- Eligible patients had at least one inpatient diagnosis of MASH/MASLD.
- Thereof, a subset of Wegovy® (semaglutide 2.4 mg/week) users was identified.

Outcomes

- Study outcomes included patient demographics, including age, sex, region of residence; clinical characteristics (presence of the pre-defined diseases), and treatment patterns, referring to initial dosage, dose titration, treatment adherence, and discontinuation.
  - Patient counts are rounded to the nearest 5.
  - The place of residence was estimated based on the geographic region of the general practitioner (GP) practice. Since GP registration is typically linked to a patient's place of residence, the distribution of GP registrations was used as a proxy.
  - Treatment adherence was assessed based on proportion of days covered (PDC). Adherence was defined as PDC ≥ 80%.
  - Treatment discontinuation was defined as a continuous treatment gap of ≥ 45 days without drug supply, beginning with the end date of the last supply.
  - Time to treatment discontinuation was assessed using Kaplan-Meier survival analysis.

RESULTS

Patient characteristics

- **Main cohort of semaglutide users**
  - Between June 2021 and November 2024, 154,670 adults had at least one semaglutide prescription, of which 76,025 patients initiated semaglutide therapy.
  - Among new users, 5.3% (n=4,055) had an inpatient diagnosis of MASH/MASLD *(main cohort of semaglutide users)*.
- **Subset of semaglutide users (2.4 mg/week)**
  - In the subset of 2,100 patients prescribed semaglutide 2.4 mg/week, 110 had a diagnosis of MASH/MASLD *(subset of semaglutide users)*.
- The mean age of semaglutide users was 54.8 years (SD 12.1), and for those using 2.4 mg/week, it was 51.5 years (SD 13.3), with the largest proportion of patients in both groups aged 46–60 years (see **Table 1**).
- During the observation period, 91.7% of patients in the main cohort of semaglutide users and 72.7% of those using 2.4 mg/week received an inpatient diagnosis of type 2 diabetes (T2D), while 60.7% and 54.6% were diagnosed with obesity, respectively (see **Table 1**).

RESULTS

TABLE 1. Characteristics of patients with semaglutide prescriptions

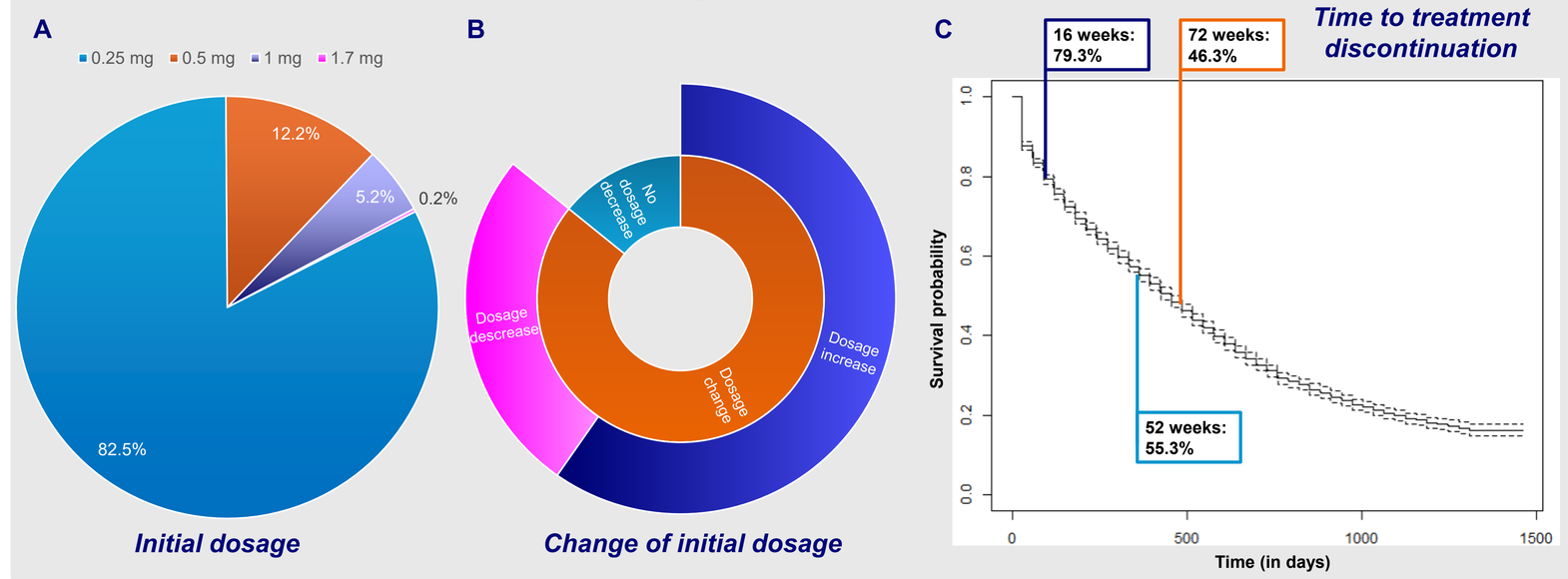
Patient characteristics		Main cohort of semaglutide users (n=4,055)	Subset of semaglutide users (2.4 mg/week) (n=110)
Age in years, mean (SD)		54.8 (12.1)	51.5 (13.3)
Age groups in years, n (%)			
	18-26 years	55 (1.4)	<10 (-)
	27-45 years	845 (20.8)	35 (31.8)
	46-60 years	1,800 (44.4)	45 (40.9)
	>60 years	1,350 (33.3)	30 (27.3)
Sex , n (%)			
	Male	1,560 (38.5)	35 (31.8)
	Female	2,485 (61.3)	70 (63.6)
	Not specified / indeterminate	<10 (-)	<10 (-)
Geographic region of GP practice, n (%)			
	East of England	310 (7.6)	<10 (-)
	London	595 (14.7)	50 (45.5)
	Midlands	685 (16.9)	<10 (-)
	North East and Yorkshire	560 (13.8)	<10 (-)
	North West	665 (16.4)	20 (18.2)
	South East	615 (15.2)	<10 (-)
	South West	460 (11.3)	<10 (-)
	Unknown	155 (3.8)	<10 (-)
Presence of the pre-defined diseases (inpatient), n (%)			
	MASH	160 (4.0)	<10 (-)
	MASLD	3,990 (98.4)	110 (100.0)
	Type 2 diabetes	3,720 (91.7)	80 (72.7)
	Obesity	2,460 (60.7)	60 (54.6)

Please note: Due to data protection regulations patient counts for n<10 patients cannot be reported; zeroes are unchanged, but all other counts are rounded to the nearest 5.

Treatment patterns

- **Main cohort of semaglutide users**
  - Most of semaglutide users with MASH/MASLD started with the initial dosage of 0.25 mg (82.5%) (see **Figure 1A**), with 80.4% of patients increasing their initial dosage (median time to dosage increase: 31 days, 95% CI: 31-59 days) (see **Figure 1B**).
  - About 76.3% of semaglutide users (n=3,095) discontinued therapy, with a median time to discontinuation of 454 days (95% CI: 424–483) (see **Figure 1C**). Nearly half (45%) discontinued within the first year (52 weeks).

FIGURE 1. Treatment patterns of main cohort of semaglutide users



- **Subset of semaglutide users (2.4 mg/week)**
  - Less than half of semaglutide 2.4 mg/week users with MASH/MASLD (n=45, 41%) adhered to treatment through week 72 (PDC > 80%), with mean (SD) PDC of 0.67 (0.27).
  - About 81.8% (n=90) initiated treatment at the recommended starting dose of 0.25 mg, while 36.4% titrated to 1.7 mg dose or more within the follow-up period (mean (SD) 22.7 (12.4) months) and <10% titrated to 1.7 mg dose or more within 16 weeks.

CONCLUSION

- **Real-world treatment patterns of semaglutide 2.4 mg/week use show deviations from recommended/per-label dosing schedule as outlined in the ESSENCE clinical trial (NCT04822181)[3], coupled with high discontinuation rates.**
- **These findings underscore key challenges in maintaining long-term semaglutide therapy and optimizing treatment adherence in the MASH population.**

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