Adherence and Persistence to Oral Semaglutide versus DPP-4is among People with Type 2 Diabetes in a US Real-World Setting

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https://sciencehub.novonordisk.com/adces2023/Lv.html?cid=qr-xejm8aogkd

Plain language summary

- There are different treatment options available for people with type 2 diabetes (T2D), each of which has its own advantages and disadvantages.
- This study evaluated how two of these treatments (oral semaglutide and DPP-4is) were used by people with T2D.
- We found that people with T2D showed a similar level of adherence and persistence when they started treatment with oral semaglutide or DPP-4is.
- An important difference was that people taking oral semaglutide utilized fewer additional antidiabetic medications (ADMs) than those taking DPP-4is, suggesting that oral semaglutide may be more effective in managing various aspects of T2D.

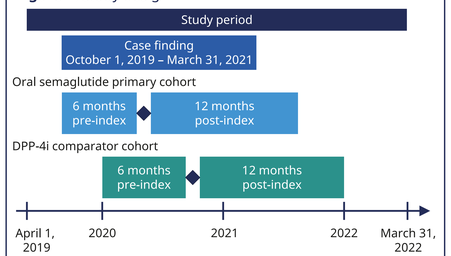
Introduction

- T2D accounted for 90–95% of the estimated >37 million US diabetes cases in 2023.[1]
- Semaglutide is the only glucagon-like peptide-1 receptor agonist (GLP-1 RA) available in an oral formulation that is indicated to improve glycemic control in people with T2D.[2,3]
- Dipeptidyl peptidase-4 inhibitors (DPP-4is) are another class of orally available ADM that is well tolerated, typically with limited side effects.[3,4]
  - Historically, people have been found to be more adherent to and persistent with DPP-4is compared with injectable GLP-1 RAs.[5,6]
- This study investigated real-world adherence, persistence and other ADM utilization patterns among people newly initiating oral semaglutide versus DPP-4is.

Methods

- This was a non-interventional, retrospective cohort study using Merative MarketScan® Commercial and Medicare databases from April 1, 2019 to March 31, 2022 (**Figure 1**).
- The primary endpoints were adherence and persistence to the cohort medication assessed over the 12-month post-index period.
  - Adherence was measured by proportion of days covered (PDC), with PDC ≥80% considered adherent.
  - Persistence was defined as the number of days until discontinuation (45-day gap in treatment) of the cohort medication, the day prior to medication switch or until the end of follow-up, whichever occurred first.
- Eligible people were adults newly initiating either oral semaglutide or a DPP-4i on or after October 1, 2019; the first fill for the cohort medication served as the index date.
  - Only people initiating a single DPP-4i agent (not a fixed-dose combination) at index were considered for inclusion in the DPP-4i cohort.
- People were also required to be continuously eligible for 6 months prior to and 12 months following index, and had to have a T2D diagnosis in the pre-period.
- Individuals with claims for the cohort medication in the pre-period or claims for both cohort medications on index were excluded, along with people with diagnoses for type 1 diabetes or pregnancy during the study period.

Figure 1: Study design



- Propensity score weighting was used to control for differences in baseline demographic and clinical characteristics between cohorts in order to facilitate between-group comparisons. The covariates included were decided following review of the descriptive baseline results. The covariates included age, sex, geographic region, insurance type, index year and baseline clinical characteristics (Charlson Comorbidity index score; presence of diabetes complications, chronic kidney disease/end-stage renal disease or obesity; utilization of biguanides, sodium-glucose cotransporter-2 inhibitors or any insulin; number of ADM classes used; out-of-pocket cohort medication costs).

Results

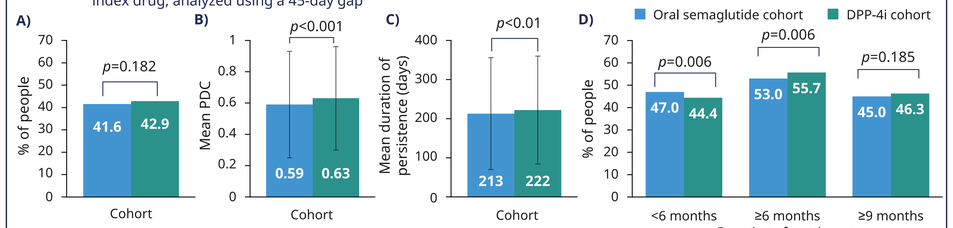
- Final weighted samples included 5485 people in the oral semaglutide cohort and 4980 people in the DPP-4i cohort.
  - Within the DPP-4i cohort, the majority of people (90.7%) used sitagliptin.
- Demographics and clinical characteristics were well balanced between the weighted cohorts, with the exception of obesity and patient out-of-pocket costs, both of which were higher in the oral semaglutide cohort (**Table 1**).

Table 1: Post-weighting demographics and baseline characteristics

	Oral semaglutide n=5485	DPP-4i n=4980	*P*-value
Age (years), mean (SD)	52.7 (9.3)	52.9 (9.4)	0.465
Sex			0.636
Male (%)	51.9	52.3	
Geographic region, n (%)			0.826
Northeast	496 (9.0)	475 (9.5)	
North Central	979 (17.8)	892 (17.9)	
South	3487 (63.6)	3133 (62.9)	
West	519 (9.5)	474 (9.5)	
Unknown	4 (0.1)	6 (0.1)	
Insurance plan type, n (%)			0.233
Comprehensive/indemnity	160 (2.9)	164 (3.3)	
EPO/PPO	2892 (52.7)	2637 (53.0)	
POS/POS with capitation	286 (5.2)	291 (5.8)	
HMO	732 (13.3)	689 (13.8)	
CDHP/HDHP	1355 (24.7)	1144 (23.0)	
Other/unknown	60 (1.1)	54 (1.1)	
Index year, n (%)			0.298
2019	248 (4.5)	235 (4.7)	
2020	3822 (69.7)	3400 (68.3)	
2021	1415 (25.8)	1345 (27.0)	
Out-of-pocket index drug costs, mean (SD)	$103 (169)	$67 (82)	<0.001
Deyo-Charlson Comorbidity Index group, mean (SD)	1.8 (1.4)	1.8 (1.5)	0.201
Comorbidity burden (%)			
Obesity	37.6	29.1	<0.001
CKD/ESRD	9.6	10.0	0.403
Number of ADM classes used, n (%)			0.585
0	11.2		11.6
1	39.6		38.5
2	30.2		31.1
3+	19.0		18.9

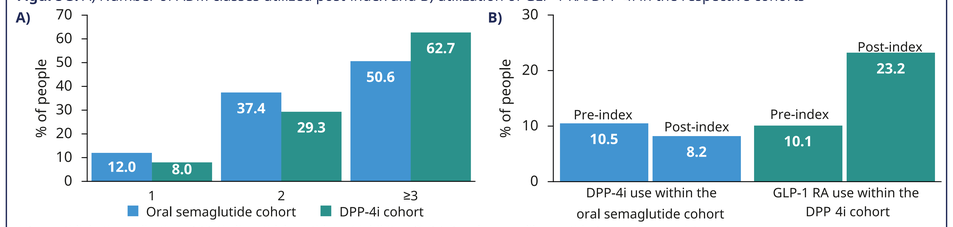
ADM, antidiabetic medication; CDHP, consumer driver health plan; CKD, chronic kidney disease; DPP-4i, dipeptidyl peptidase-4 inhibitor; EPO, exclusive provider organization; ESRD, end-stage renal disease; HDHP, high-deductible health plan; HMO, health maintenance organization; POS, point of service; PPO, preferred provider organization

Figure 2: A) Proportion of people with PDC ≥0.80, B) adherence measured as mean PDC, C) duration of persistence and D) persistence to index drug, analyzed using a 45-day gap



SDs within panels 2B and 2C are displayed as error bars
DPP-4i, dipeptidyl peptidase 4 inhibitor; GLP-1 RA, glucagon-like peptide-1 receptor agonist; PDC, proportion of days covered; SD, standard deviation

Figure 3: A) Number of ADM classes utilized post-index and B) utilization of GLP-1 RA/DPP-4i in the respective cohorts



ADM, antidiabetic medication; DPP-4i, dipeptidyl peptidase-4 inhibitor; GLP-1 RA, glucagon-like peptide-1 receptor agonist

- Similar proportions of people in both cohorts were adherent, with a PDC ≥0.80 over the 12-month follow-up period (**Figure 2A**).
  - Although mean PDC was significantly higher in the DPP-4i cohort compared to the oral semaglutide cohort, the difference was numerically small (**Figure 2B**).
- Oral semaglutide persistence was similar to DPP-4i at the treatment gap of 45 days (**Figures 2C and 2D**).
  - The rates of discontinuation were similar for the oral semaglutide cohort and the DPP-4i cohort at 56.3% and 55.9% (p=0.727), respectively.
- People in the oral semaglutide cohort used a significantly lower mean number of ADMs in the post-index period compared to the DPP-4i cohort (2.6 [standard deviation (SD) 1.0] vs 2.9 [SD 1.1], respectively; p<0.001), with 50.6% of people in the oral semaglutide cohort and 62.7% of people in the DPP-4i cohort using ≥3 ADM classes (**Figure 3A**).
  - Of note, there was an increase of 13.1 percentage points in the number of people in the DPP-4i cohort who had ≥1 fill for a GLP-1 RA from the pre- to the post-index period (**Figure 3B**).

Conclusions

- After adjusting baseline demographics and clinical characteristics, the oral semaglutide cohort:
  - Had a similar proportion of people adherent to therapy as the DPP-4i cohort (after weighting).
  - Showed a similar proportion of people persistent at 9 months and had a persistence rate at 6 months that was only slightly lower than the DPP-4i cohort.
- People prescribed DPP-4is used a greater mean number of ADM classes over the post-index period vs those prescribed oral semaglutide, as well as a greater percentage using ≥3 ADM classes.
  - Within the DPP-4i cohort, 23.2% of people ended up using a GLP-1 RA.
  - This implies that there are clinical benefits to prescribing oral semaglutide, such as a reduced need for additional ADMs.

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Presented at the Association of Diabetes Care & Education Specialists (ADCES) conference, August 4–7, 2023, Houston, Texas, USA.

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