Initiating GLP-1 Therapy in Combination with FreeStyle Libre Provides Greater Benefit Compared to GLP-1 Therapy Alone

Eugene E. Wright[1], Gregory J. Roberts[2], Joyce S. Chuang[2], Yelena Nabutovsky[2], Naunihal Virdi[3], Eden Miller[4]

[1]South Piedmont AHEC, Charlotte, NC. [2]Abbott, Santa Clara, CA. [3]Abbott Diabetes Care, Alameda, CA. [4]Diabetes and Obesity Care LLC, Bend, OR.

Background and Objective

Both glucagon-like peptide-1 receptor agonists (GLP-1 RA) and continuous glucose monitors (CGM) provide glycemic benefits for type 2 diabetes (T2D)[1]. It is unknown if patients benefit from the use of CGM, such as FreeStyle Libre (FSL), when taking GLP-1 medication. The objective of this study was to compare changes in HbA1c in patients using GLP-1 with or without FSL use.

Methods

Data Source: Optum's de-identified Market Clarity Data, a linked electronic health records-claims database (2017-2022) based in the United States.

Inclusion Criteria:

- Adult w/ T2D and baseline HbA1c ≥8%
- 180 days of continuous Rx and medical coverage prior to first GLP-1 Rx (index event)
- First FSL CGM acquisition within ± 30 days of first GLP-1 Rx (GLP-1/FSL group)

Exclusion Criteria:

- History of non-FSL CGM (GLP-1/FSL group)
- Gestational or type 1 diabetes

HbA1c Measurements:

- Baseline value within 180 days prior to and closest to index (date of first GLP-1 acquisition)
- Follow up value within 60–300 days post-index and closest to 180 days post-index

[1]American Diabetes Association Professional Practice Committee. Standards of Care in Diabetes-2024. Diabetes Care. 2024 Jan 1;47(Suppl 1).

Statistical Methods:

- Propensity-score (PS) matching performed at a 1:5 ratio using age, sex, baseline HbA1c, first GLP-1 type, and insulin therapy (exact match)
- Difference-in-difference (DID) used to compare HbA1c changes between groups

Results

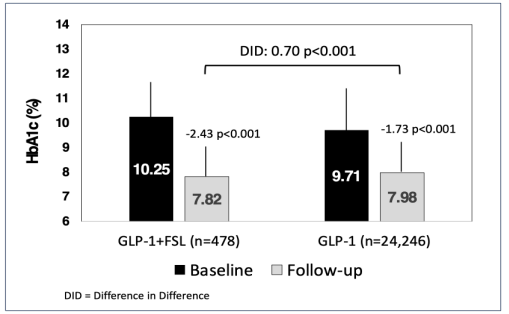
Study Cohort: 24,724 adults in the unmatched cohort (GLP-1/FSL, n=478; GLP-1, n=24,246). After PS matching, all baseline covariates were balanced between groups (GLP-1/FSL, n=478; GLP-1, n=2,390) with standardized mean differences <0.1.

Baseline Characteristics of Unmatched Cohort	GLP-1/FSL N=478	GLP-1 N = 24,246
Age, years (mean±SD)*	53.5 ± 10.8	57.9 ± 11.7
Male, n (%)*	276 (57.7)	12,394 (51.1)
Race, n (%)		
African American	79 (16.5)	3,430 (14.1)
Asian	16 (3.3)	483 (2.0)
Caucasian	326 (68.2)	17,450 (72.0)
Other/unknown	57 (11.9)	2,883 (11.9)
Insulin use, n (%)*		
Intensive	131 (27.4)	3,445 (14.2)
Non-intensive	118 (24.7)	4,952 (20.4)
No insulin	229 (47.9)	15,849 (65.4)
First GLP-1, n (%)*		
Dulaglutide	221 (46.2)	10,873 (44.8)
Liraglutide	49 (10.3)	3,652 (15.1)
Semaglutide	172 (36.0)	7,158 (29.5)
Other GLP-1	36 (7.5)	2,563 (10.6)
Baseline HbA1c, %	10.25 ± 1.68	9.71 ± 1.49

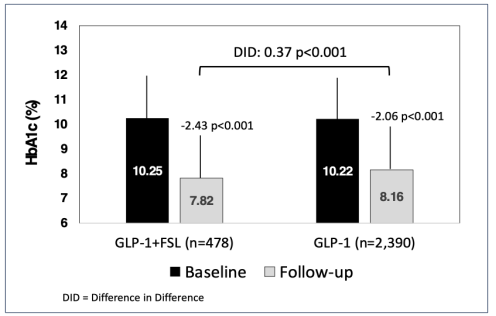
*P<0.05 for GLP-1/FSL vs GLP-1 group

Comparison of HbA1c Change: HbA1c reduction was greater in the GLP-1/FSL group compared to the GLP-1 group in the unmatched cohort (A) (**-2.43% vs. -1.73%, difference 0.70%, p<0.001**) and in the matched cohort (B) (**-2.43% vs. -2.06%, difference 0.37%, p<0.001**). Significant reductions are observed in both sub-analysis by insulin use (C) and by first GLP-1 RA (D).

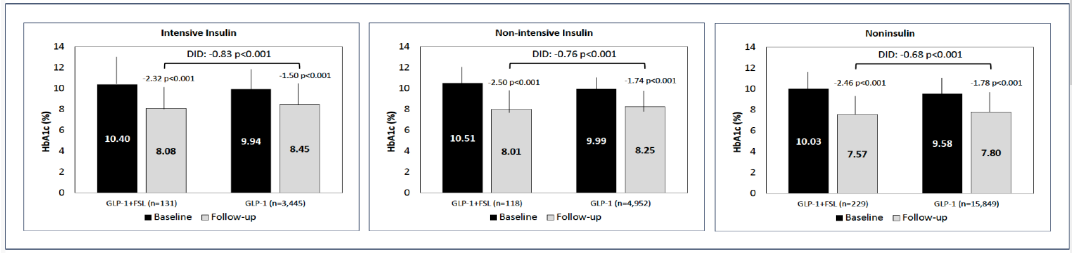
A) Change In HbA1c: Unmatched Cohort



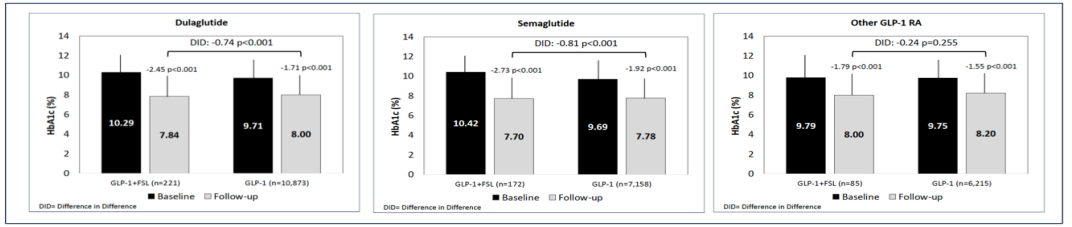
B) Change In HbA1c: Matched Cohort



C) Change In HbA1c By Insulin Therapy Group: Unmatched Cohort



D) Change In HbA1c By First GLP-1 RA Type: Unmatched Cohort



Conclusions

Adults with sub-optimally controlled T2D, initiating GLP-1 RA with FreeStyle Libre, had greater improvement in HbA1c compared to those treated with GLP-1 only. These results suggest an additional glycemic benefit of FSL when used with a GLP-1 in T2D treatment.

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