

SHORT ORAL DISCUSSION – PRESENTATION OPO50

FRONTIER – FReeStyle Libre use in ONtario among patients with Type 2 diabetes – Evidence from Real-world Practice: patients aged >65 years on non-insulin therapies

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Disclosures

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YP: is an employee and shareholder of Abbott.

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Introduction

OBJECTIVE

This study aimed to investigate HbA1c levels and HCRU at a population level before and after adoption of FreeStyle Libre Systems (FSL) in people aged >65 years living with T2DM who were using a GLP-1 RA or oral therapy

- Poor glucose control among people living with T2DM can lead to acute events, e.g. hypoglycemia and DKA^{1,2}
- Sensor-based glucose monitoring systems such as FSL could reduce the risk of hypoglycemia and DKA³
- Reductions in HbA1c and hospitalization due to acute diabetes events have been observed following initiation of glucose monitoring systems such as FSL by people with T2DM on non-insulin therapies^{4,5}
- However, no real-world studies have previously been conducted for a Canadian population

DKA, diabetic ketoacidosis; ED, emergency department; FSL, FreeStyle Libre Systems; GLP-1 RA, glucagon-like peptide 1 receptor agonist; HbA1c, glycated hemoglobin; HCRU, healthcare resource utilization; T2DM, type 2 diabetes mellitus.

1. Benoit SR *et al. Diabetes Care* 2020;43:1057–1064. 2. McCoy RG *et al. JAMA Netw Open* 2020;3:e1919099. 3. Rodbard D. *Diabetes Technol Ther* 2016;18 Suppl 2:S3–S13. 4. Riveline JP *et al. Diabetes Technol Ther* 2024;26:932–938; 5. Wright EE, Jr. *et al. Diabetes Spectr* 2021;34:184–189.

Data source and population

- Retrospective longitudinal study using routinely collected administrative health data in Ontario, Canada
 - Ontario was the first Canadian province to cover FSL for people with T2DM using any insulin regimen, in 2019
 - The IC/ES data repository includes coded and linkable administrative health data for 1.1 million people with T2DM
 - IC/ES data include information on ED visits, hospitalizations, physician visits, and prescription drug use for all residents of Ontario who are covered by the Ontario Health Insurance Plan and Ontario Drug Benefit
- The analysis population comprised people with T2DM aged >65 years who:
 - had a first FSL claim between 16 September 2019 and 31 August 2020 (index date)
 - were using a GLP-1 RA therapy without insulin (\pm oral glucose lowering therapy) or an oral therapy at the index date
 - remained active on FSL for 24 months' follow-up

ED, Emergency Department; FSL, FreeStyle Libre Systems; GLP-1 RA, glucagon-like peptide 1 receptor agonist; IC/ES, Institute for Clinical Evaluative Sciences (former name); T2DM, type 2 diabetes mellitus.

Methods:

Patient selection and measurement of HbA1c and HCRU

POPULATION: People with T2DM aged >65 years using non-insulin therapies and FSL

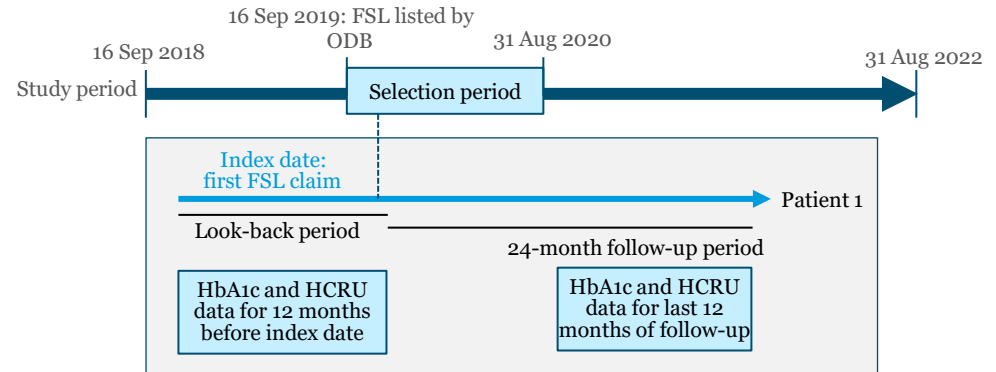
OUTCOMES: HbA1c, ED visits and hospitalizations, and RIW

ANALYSIS COHORT:

- 1,774 patients

TREATMENT USE AT INDEX DATE:

- GLP-1 RA (\pm oral therapy), 273
- Oral therapy only, 1,501



Baseline characteristics

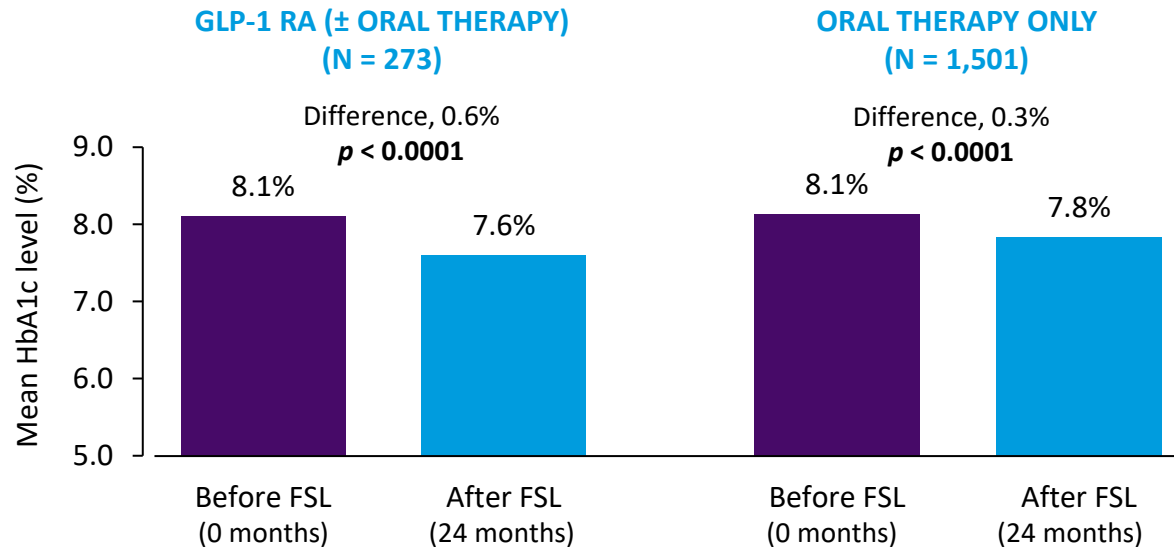
Characteristic	GLP-1 RA (n = 273)	Oral therapy only (n = 1,501)
Mean age at index date, years (SD)	71.7 (4.6)	73.9 (6.2)
Male, %	59.0%	58.3%

ED, Emergency Department; FSL, FreeStyle Libre Systems; GLP-1 RA, glucagon-like peptide 1 receptor agonist; HbA1c, glycated hemoglobin; HCRU, healthcare resource utilization; ODB, Ontario Drug Benefit; RIW, resource intensity weight; SD, standard deviation; T2DM, type 2 diabetes mellitus.

Results: HbA1c

Mean HbA1c was reduced after starting FSL

- Statistically significant* reductions in mean HbA1c were seen both for patients using GLP-1 RA therapy and for those on oral therapy only

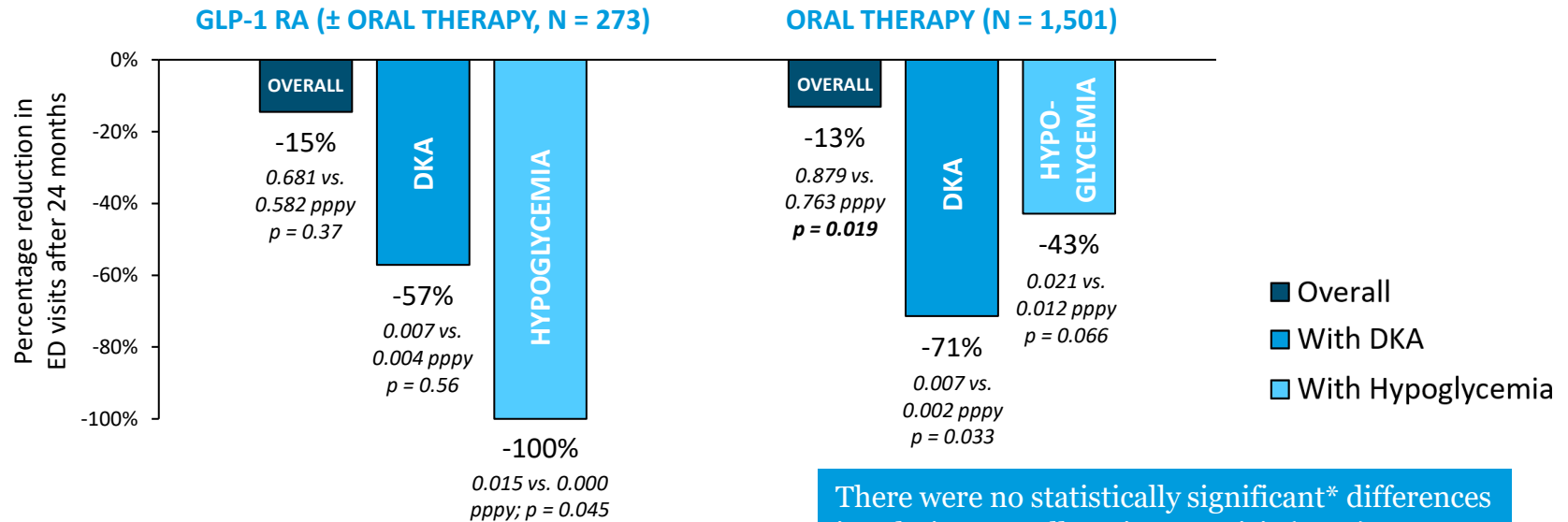


* Alpha = 0.025. FSL, FreeStyle Libre Systems; GLP-1 RA, glucagon-like peptide 1 receptor agonist; HbA1c, glycated hemoglobin.

Results: ED visits

ED visits were reduced after starting FSL

- Rates of ED visits overall, with hypoglycemia, and with DKA were reduced both for patients using GLP-1 RA therapy and for those on oral therapy only (statistically significant for overall ED visits in oral therapy group)



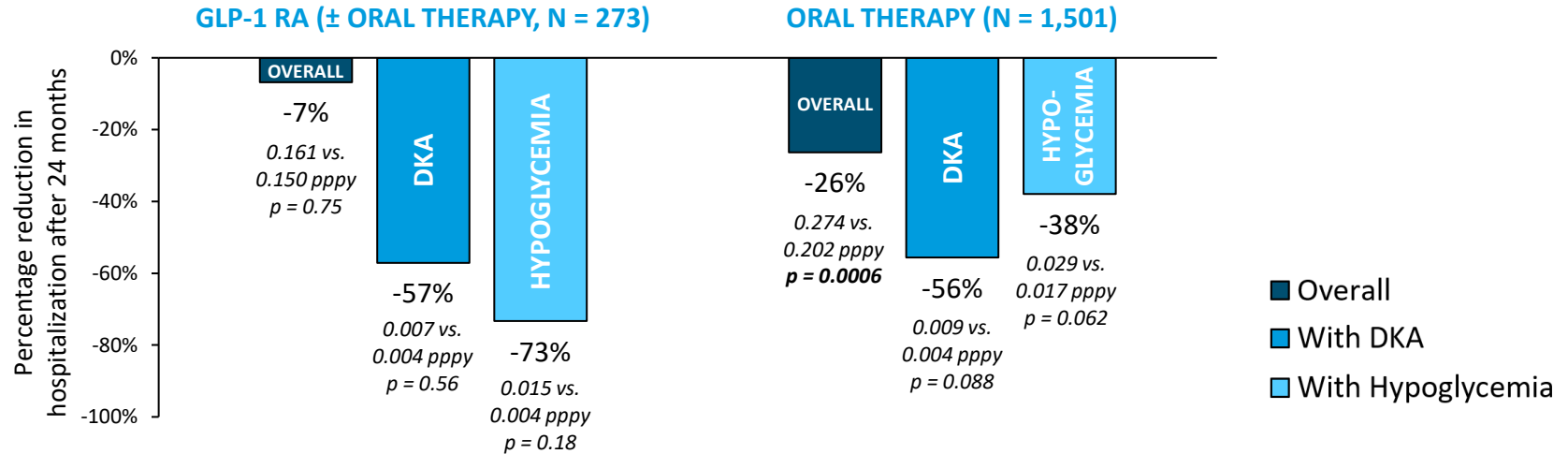
There were no statistically significant* differences in relative cost allocation per visit (RIW)

* Alpha = 0.025. DKA, diabetic ketoacidosis; ED, emergency department; FSL, FreeStyle Libre Systems; RIW, research intensity weight.

Results: hospitalization

Hospitalization was reduced after starting FSL

- Rates of hospitalization overall, with hypoglycemia, and with DKA were reduced both for patients using GLP-1 RA therapy and for those on oral therapy only (statistically significant for overall hospitalization in oral therapy group)



There were no statistically significant* differences in relative cost allocation per visit (RIW)

* Alpha = 0.025. DKA, diabetic ketoacidosis; FSL, FreeStyle Libre Systems; RIW, research intensity weight.

Discussion

- Among people aged >65 years living with T2DM who were using GLP-1 RA and/or oral therapies, adoption of FSL was associated with reductions in HbA1c levels and in ED visits and hospitalization
- At the same time, the cost per ED visit or hospitalization remained largely unchanged, suggesting that the reduction in the number of these events following FSL use was also associated with an overall decrease in total costs
- Strengths of this population-based study include the large, population-based sample, with a patient cohort representing all people with DM in Ontario receiving publicly funded health care
- Limitations of this analysis include the small sample size in the GLP-1 RA group, the lack of a parallel control group, and the potential for confounding

DM, diabetes mellitus; ED, emergency department; FSL, FreeStyle Libre Systems; GLP-1 RA, glucagon-like peptide 1 receptor agonists; HbA1c, glycated hemoglobin; HCRU, healthcare resource utilization; RIW, resource intensity weight; T2DM, type 2 diabetes mellitus.

Conclusions

- For people living with T2DM aged >65 years on GLP-1 RA and/or oral therapy, initiation of FSL was associated with a statistically significant mean reduction in HbA1c
- HCRU improvements were seen in both groups, but were statistically significant only for patients using oral therapy, which may reflect the smaller sample size in the GLP-1 RA group

DM, diabetes mellitus; ED, emergency department; FSL, FreeStyle Libre Systems; GLP-1 RA, glucagon-like peptide 1 receptor agonists; HbA1c, glycated hemoglobin; HCRU, healthcare resource utilization; T2DM, type 2 diabetes mellitus.

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