SHORT ORAL DISCUSSION – PRESENTATION 811

FRONTIER – FReeStyle Libre use in ONtario among patients with Type 2 diabetes in the IC/ES database – Evidence from Real-world Practice: patients aged ≥ 66 years on basal insulin ± GLP-1 RA

Stewart B Harris[1], Alexandria Ratzki-Leewing,[1] Yeesha Poon,[2] Rémi Rabasa-Lhoret[3]

[1]*Western University, London, Ontario, Canada;*
[2]*Abbott Diabetes Care, Mississauga, Ontario, Canada;*
[3]*Montreal Clinical Research Institute, Montreal, Quebec, Canada.*

60th EASD annual meeting, Madrid, Spain

11 | Sep | 24

Disclosures

SBH: reports consulting with Abbott, Bayer, Dexcom, Eli Lilly NovoNordisk, and Sanofi; and research grants from BIO, Eli Lilly, NovoNordisk, and Novartis.

ARL: reports research support from Sanofi Canada and Sanofi Global; consulting for Novo Nordisk Global, Dexcom Canada, and Sanofi United States; advisory boards for Sanofi United States; and paid presentations for Sanofi Canada, Sanofi Global, Novo Nordisk Canada, Eli Lilly Canada, Abbott Canada, Dexcom Canada, Diabetes Canada, and the American Diabetes Association.

YP: is an employee and shareholder of Abbott.

RRL: reports research grants from Diabetes Canada, Astra-Zeneca, E Lilly, Cystic Fibrosis Canada, CIHR, FFRD, Janssen, JDRF, Merck, NIH, Novo-Nordisk, Société Francophone du Diabète, Sanofi-Aventis, and Vertex Pharmaceutical; consulting/advisory panels for Abbott, Astra-Zeneca, Bayer, Boehringer I, Dexcom, E Lilly, HLS therapeutics, INESSS, Insulet, Janssen, Medtronic, Merck, Novo-Nordisk, Pfizer, and Sanofi-Aventis; honoraria for conferences from Abbott, Astra-Zeneca, Boehringer I, CPD Network, Dexcom, CMS Canadian Medical&Surgical Knowledge Translation Research group, E Lilly, Janssen, Medtronic, Merck, Novo-Nordisk, Sanofi-Aventis, Tandem, and Vertex Pharmaceutical; consumable gifts (in kind) from E Lilly and Medtronic; unrestricted grants for clinical and educational activities from Abbott, Dexcom, E Lilly, Medtronic, Merck, Novo Nordisk, and Sanofi-Aventis; patents for T2DM risk biomarkers and catheter life; and purchase fees from E Lilly (artificial pancreas).

FUNDING: Abbott provided funding for the study.

Introduction

OBJECTIVE

This study aimed to investigate HbA1c levels and HCRU before and after adoption of FreeStyle Libre in people aged ≥ 66 years with T2DM who were using basal insulin, alone or in combination with GLP-1 RA

- Poor glucose control among people with T2DM can lead to acute events, including hypoglycemia and DKA, which can require ED visits or hospitalization[1,2]
- Sensor-based glucose monitoring systems such as FreeStyle Libre may reduce the risk of hypoglycemia and DKA by providing people with T2DM key insights into their current glucose readings, glucose variability and trends.[3]
- This cross-sectional retrospective cohort study uses the IC/ES database, which includes the health records of all people eligible for publicly funded health care in Ontario, Canada
- The IC/ES database includes health data for a total of 13 million people (including up to 1.1 million with T2DM)

DKA, diabetic ketoacidosis; ED, emergency department; GLP-1 RA, glucagon-like peptide 1 receptor agonists; HbA1c, glycated hemoglobin; HCRU, healthcare resource utilization; IC/ES, Institute for Clinical Evaluative Sciences; 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.

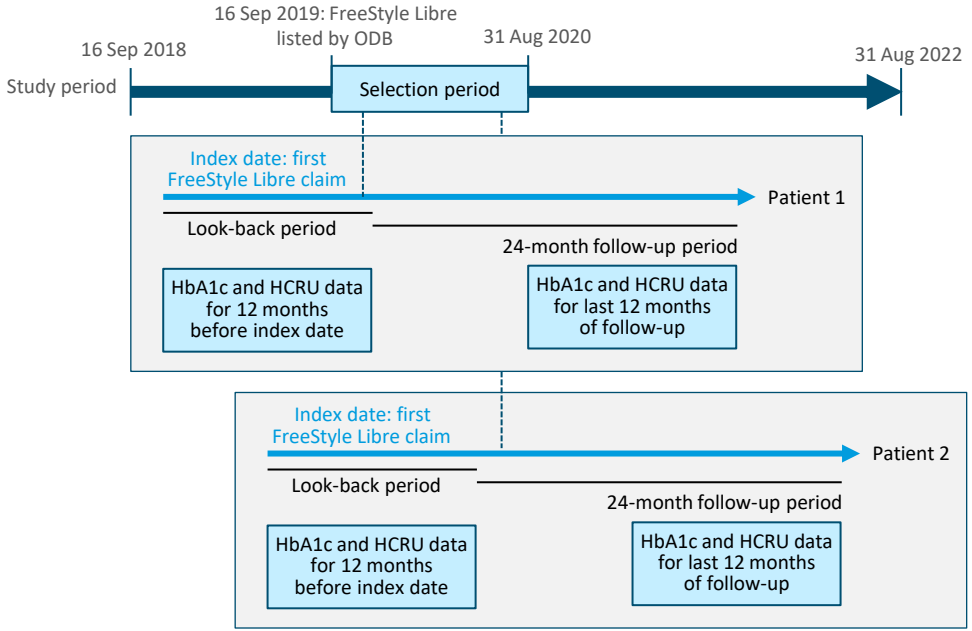
Methods:
Patient selection and measurement of HbA1c and HCRU

POPULATION: People with T2DM aged ≥ 66 years using basal insulin and FreeStyle Libre

OUTCOMES: HbA1c, ED visits and hospitalizations, and RIW

ANALYSIS COHORT:
- 12,480 patients

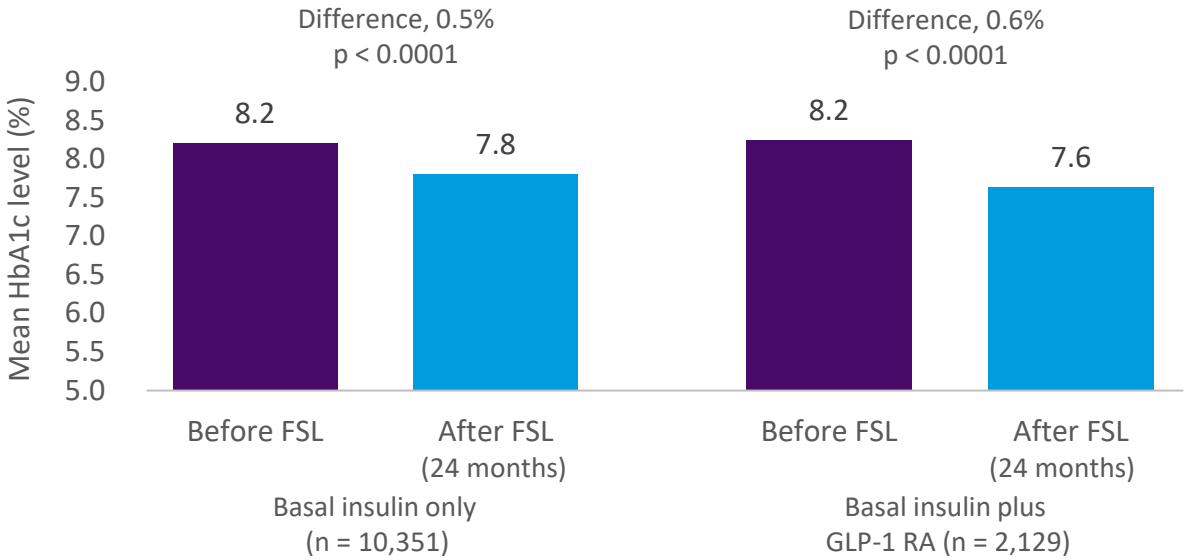
TREATMENT USE AT INDEX DATE:
- Basal insulin only, 10,351
- Basal insulin plus GLP-1 RA, 2,129



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.

Results: HbA1c
Mean HbA1c was reduced after starting FreeStyle Libre

STATISTICALLY SIGNIFICANT* REDUCTIONS IN MEAN HBA1c WERE SEEN FOR PATIENTS USING BASAL INSULIN (± GLP-1 RA)

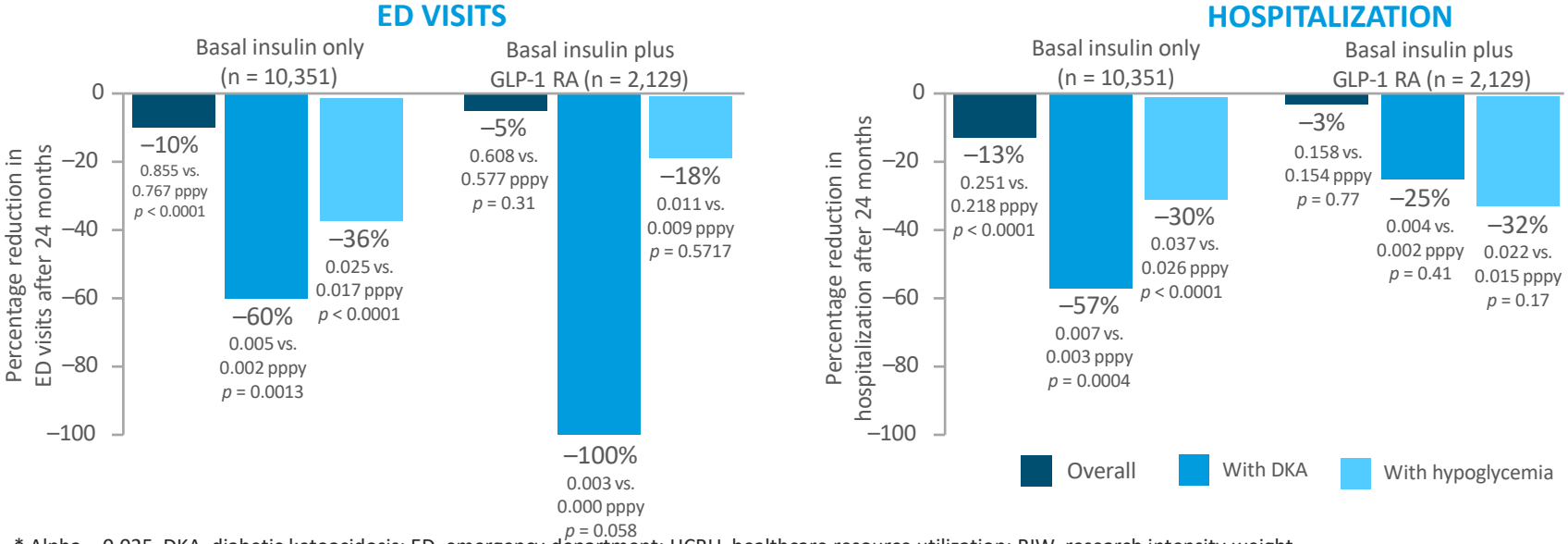


* Alpha = 0.025. FSL, FreeStyle Libre; GLP-1 RA, glucagon-like peptide 1 receptor agonists; HbA1c, glycated hemoglobin.

Results: HCRU

ED visits and hospitalization were reduced after starting FreeStyle Libre

- Rates of ED visits and hospitalization overall, with hypoglycemia, and with DKA were reduced in both groups (statistically significant* in basal insulin only group)
- There were no statistically significant* differences in relative cost allocation per visit (RIW)



* Alpha = 0.025. DKA, diabetic ketoacidosis; ED, emergency department; HCRU, healthcare resource utilization; RIW, research intensity weight.

Discussion

- Among people aged ≥ 66 years with T2DM using basal insulin, adoption of FreeStyle Libre was associated with reductions in HbA1c levels and HCRU
- Although there were statistically significant decreases in both ED visits and hospitalizations, we observed no statistically significant change in relative cost allocation per visit (RIW) suggesting that ED and hospitalization costs were reduced overall following the adoption of FreeStyle Libre
- 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 lack of a parallel control group and potential for confounding

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

Acknowledgements

- We thank Accurytics Ltd. for their support in developing the study protocol and managing the study with ICES. The conclusions, opinions and statements expressed herein are solely those of the authors and no endorsement is intended or should be inferred.
- This study made use of de-identified data from the ICES Data Repository, which is managed by the Institute for Clinical Evaluative Sciences with support from its funders and partners: Canada's Strategy for Patient-Oriented Research (SPOR), the Ontario SPOR Support Unit, the Canadian Institutes of Health Research and the Government of Ontario. The opinions, results and conclusions reported are those of the authors. No endorsement by ICES or any of its funders or partners is intended or should be inferred.
- Parts of this material are based on data and/or information compiled and provided by CIHI and the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of the funding or data sources; no endorsement is intended or should be inferred.
- We thank IQVIA Solutions Canada Inc. for use of their Drug Information File. Parts of this material are based on data and information compiled and provided by the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of the funding or data sources; no endorsement is intended or should be inferred.
- Parts of this material are based on data and information provided by Ontario Health (OH). The opinions, results, view, and conclusions reported in this paper are those of the authors and do not necessarily reflect those of OH. No endorsement by OH is intended or should be inferred.
- This document used data adapted from the Statistics Canada Postal CodeOM Conversion File, which is based on data licensed from Canada Post Corporation, and/or data adapted from the Ontario Ministry of Health Postal Code Conversion File, which contains data copied under license from ©Canada Post Corporation and Statistics Canada.
- Medical writing support was provided by Dr Paul Overton (Beacon Medical Communications Ltd, Brighton, UK) in accordance with Good Publication Practice (GPP 2022) guidelines and was funded by Abbott.

FRONTIER – FReeStyle Libre use in ONtario among patients with Type 2 diabetes in the IC/ES database – Evidence from Real-world Practice: patients aged ≥ 66 years on basal insulin ± GLP-1 RA

Stewart B Harris,[1] Alexandria Ratzki-Leewing,[1] Yeesha Poon,[2] Rémi Rabasa-Lhoret[3]

[1]Western University, London, Ontario, Canada; [2]Abbott Diabetes Care, Mississauga, Ontario, Canada; [3]Montreal Clinical Research Institute, Montreal, Quebec, Canada.

Introduction

- Poor glucose control among people with T2DM can lead to acute events, including hypoglycemia and diabetic ketoacidosis (DKA), which can require emergency department (ED) visits or hospitalization[1,2]
- Sensor-based glucose monitoring systems such as FreeStyle Libre may reduce the risk of hypoglycemia and DKA by providing people with T2DM key insights into their current glucose readings, glucose variability and trends[3]
- This cross-sectional retrospective cohort study uses the Institute for Clinical Evaluative Sciences (IC/ES) database, which includes the health records of all people eligible for publicly funded health care in Ontario, Canada
- The IC/ES database includes health data for a total of 13 million people (including up to 1.1 million with T2DM)

Objective

- This study aimed to investigate glycated hemoglobin (HbA1c) levels and healthcare resource utilization (HCRU) before and after adoption of FreeStyle Libre in people aged ≥ 66 years with type 2 diabetes mellitus (T2DM) who were using basal insulin, alone or in combination with glucagon-like peptide 1 receptor agonists (GLP-1 RA)

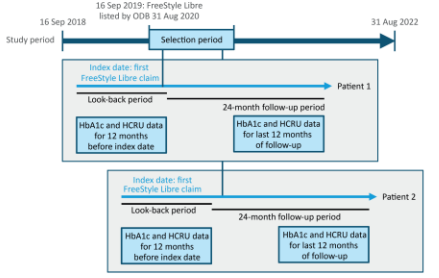
Methods

POPULATION: People with T2DM aged ≥ 66 years using basal insulin and FreeStyle Libre

OUTCOMES: HbA1c, ED visits and hospitalizations, and resource intensity weight (RIW)

ANALYSIS COHORT:
- 12,480 patients

TREATMENT USE AT INDEX DATE:
- Basal insulin only, 10,351
- Basal insulin plus GLP-1 RA, 2,129

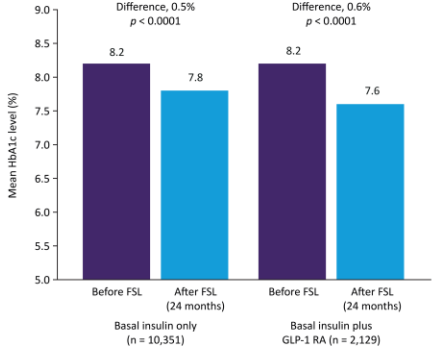


Results

HbA1c

Mean HbA1c was reduced after starting FreeStyle Libre

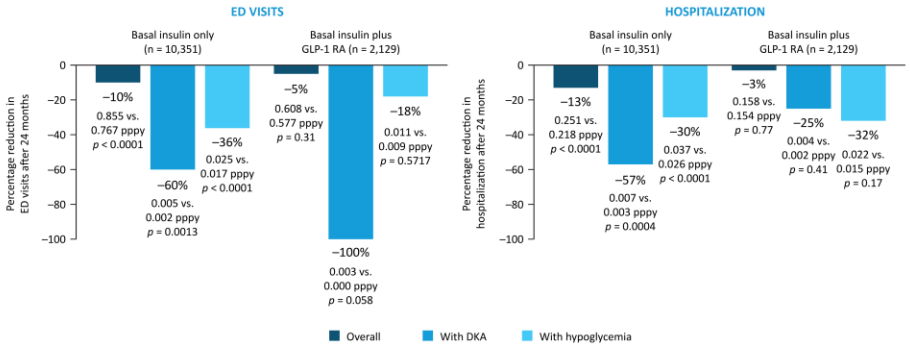
- Statistically significant (alpha = 0.025) reductions in mean HbA1c were seen for patients using basal insulin (± GLP-1 RA)



HCRU

ED visits and hospitalization were reduced after starting FreeStyle Libre

- Rates of ED visits and hospitalization overall, with hypoglycemia, and with DKA were reduced in both groups (statistically significant [alpha = 0.025] in basal insulin only group)
- There were no statistically significant differences in relative cost allocation per visit (RIW)



Discussion

- Among people aged ≥ 66 years with T2DM using basal insulin, adoption of FreeStyle Libre was associated with reductions in HbA1c levels and HCRU
- Although there were statistically significant decreases in both ED visits and hospitalizations, we observed no statistically significant change in relative cost allocation per visit (RIW) suggesting that ED and hospitalization costs were reduced overall following the adoption of FreeStyle Libre
- Strengths of this population-based study include the large, population-based sample, with a patient cohort representing all people with diabetes mellitus in Ontario receiving publicly funded health care
- Limitations of this analysis include the lack of a parallel control group and potential for confounding

Acknowledgements

We thank Accurytics Ltd. for their support in developing the study protocol and managing the study with ICES. The conclusions, opinions and statements expressed herein are solely those of the authors and no endorsement is intended or should be inferred.

This study made use of de-identified data from the ICES Data Repository, which is managed by the Institute for Clinical Evaluative Sciences with support from its funders and partners: Canada's Strategy for Patient-Oriented Research (SPOR), the Ontario SPOR Support Unit, the Canadian Institutes of Health Research and the Government of Ontario. The opinions, results and conclusions reported are those of the authors. No endorsement by ICES or any of its funders or partners is intended or should be inferred.

Parts of this material are based on data and/or information compiled and provided by CIHI and the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of the funding or data sources; no endorsement is intended or should be inferred.

We thank IQVIA Solutions Canada Inc. for use of their Drug Information File. Parts of this material are based on data and information compiled and provided by the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of the funding or data sources; no endorsement is intended or should be inferred.

Parts of this material are based on data and information provided by Ontario Health (OH). The opinions, results, view, and conclusions reported in this paper are those of the authors and do not necessarily reflect those of OH. No endorsement by OH is intended or should be inferred.

This document used data adapted from the Statistics Canada Postal CodeOM Conversion File, which is based on data licensed from Canada Post Corporation, and/or data adapted from the Ontario Ministry of Health Postal Code Conversion File, which contains data copied under license from ©Canada Post Corporation and Statistics Canada.

Medical writing support was provided by Dr Paul Overton (Beacon Medical Communications Ltd, Brighton, UK) in accordance with Good Publication Practice (GPP 2022) guidelines and was funded by Abbott.

Disclosures

SBH: reports consulting with Abbott, Bayer, Dexcom, Eli Lilly NovoNordisk, and Sanofi; and research grants from BIO, Eli Lilly, NovoNordisk, and Novartis.

ARL: reports research support from Sanofi Canada and Sanofi Global; consulting for Novo Nordisk Global, Dexcom Canada, and Sanofi United States; advisory boards for Sanofi United States; and paid presentations for Sanofi Canada, Sanofi Global, Novo Nordisk Canada, Eli Lilly Canada, Abbott Canada, Dexcom Canada, Diabetes Canada, and the American Diabetes Association.

YP: is an employee and shareholder of Abbott.

RRL: reports research grants from Diabetes Canada, Astra-Zeneca, E Lilly, Cystic Fibrosis Canada, CIHR, FFRD, Janssen, JDRF, Merck, NIH, Novo-Nordisk, Société Francophone du Diabète, Sanofi-Aventis, and Vertex Pharmaceutical; consulting/advisory panels for Abbott, Astra-Zeneca, Bayer, Boehringer I, Dexcom, E Lilly, HLS therapeutics, INESSS, Insulet, Janssen, Medtronic, Merck, Novo-Nordisk, Pfizer, and Sanofi-Aventis; honoraria for conferences from Abbott, Astra-Zeneca, Boehringer I, CPD Network, Dexcom, CMS Canadian Medical&Surgical Knowledge Translation Research group, E Lilly, Janssen, Medtronic, Merck, Novo-Nordisk, Sanofi-Aventis, Tandem, and Vertex Pharmaceutical; consumable gifts (in kind) from E Lilly and Medtronic; unrestricted grants for clinical and educational activities from Abbott, Dexcom, E Lilly, Medtronic, Merck, Novo Nordisk, and Sanofi-Aventis; patents for T2DM risk biomarkers and catheter life; and purchase fees from E Lilly (artificial pancreas).

FUNDING: Abbott provided funding for the study.

References

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.

Presented at the 60th EASD annual meeting, Madrid, Spain