

Complimentary CME/CE

Individualizing Insulin for Patients Who Fear Hypoglycemia: Using Evolving Basal Insulins to Minimize Adverse Effects

Provided by

Med-IQ

Activity Overview

In this case-based webcast, meet LaWanda, a 57-year-old woman with type 2 diabetes. Her glycated hemoglobin (HbA1C) is 8.4%, she is currently taking basal insulin and fast-acting insulin, and she has a history and fear of hypoglycemia. Faculty experts Vivian Fonseca, MD, and Timothy Reid, MD, discuss how they would approach this patient case scenario, including identifying an insulin treatment plan for LaWanda that takes into account her concerns regarding hypoglycemia and advancing her insulin therapy.

Target Audience

This activity is intended for family practice physicians, general practice physicians, internal medicine physicians, primary care physicians, nurse practitioners, physician assistants, and nurses.

Instructions to Receive Credit

To receive credit, read the introductory CME/CE material, watch the webcast, and complete the evaluation, attestation, and post-test, answering at least 70% of the post-test questions correctly.



Faculty

Vivian Fonseca, MD (*Co-Chair, Presenter*)

Professor of Medicine and Pharmacology
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Disclosure Policy

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Disclosure Statement

The content of this activity has been peer reviewed and has been approved for compliance. The faculty and contributors have indicated the following financial relationships, which have been resolved through an established COI resolution process, and have stated that these reported relationships will not have any impact on their ability to give an unbiased presentation.





Faculty Disclosure Statements

Vivian Fonseca, MD

Consulting fees/advisory boards: Bayer HealthCare Pharmaceuticals, Boehringer-Ingelheim Pharmaceuticals, Inc.

Contracted research: Asahi Kasei Pharma Corporation, AstraZeneca, Eli Lilly and Company, Intarcia Therapeutics, Inc., Novo Nordisk, Sanofi Genzyme, Takeda Pharmaceuticals North America, Inc.

Timothy S. Reid, MD

Consulting fees/advisory boards: AstraZeneca, Intarcia Therapeutics, Inc., Janssen Pharmaceuticals, Inc., Novo Nordisk, Sanofi Genzyme

Fees received for promotional/non-CME activities: Janssen Pharmaceuticals, Inc., Novo Nordisk, Sanofi Genzyme

The peer reviewers and activity planners have no financial relationships to disclose.



Learning Objective

Upon completion, participants should be able to:

- Outline insulin-based treatment strategies that maximize glycemic control while limiting adverse effects among patients with a history of severe hypoglycemia
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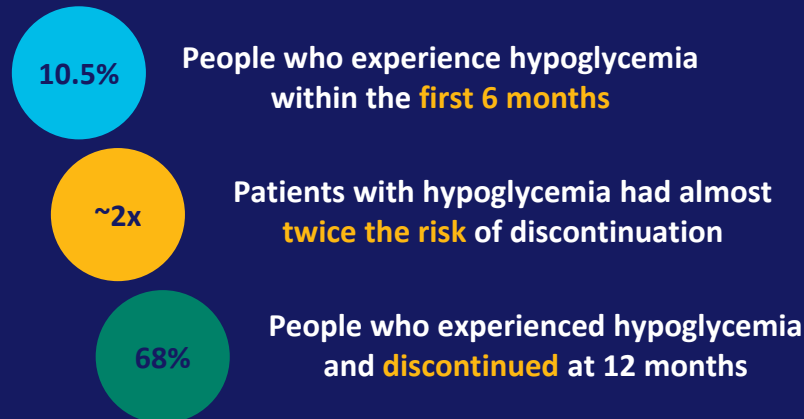
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Meet LaWanda

- 57-year-old woman with a 14-year history of T2D
- Last HbA1C was 8.4%
- Currently treated with insulin detemir and insulin aspart
- Fearful of hypoglycemia; she has had two overnight spells and one that occurred after taking her insulin and being called away for a family emergency

The Impact of Hypoglycemia on Insulin Use



Dalal MR, et al. *Curr Med Res Opin.* 2017;33:209-14.

Patient and Clinician Fears About Hypoglycemia

- Severe episodes
 - Increased risk of major macrovascular and microvascular events and mortality
 - Increased risk of neurologic consequences (altered consciousness, seizures, coma)
- Minor episodes
 - Negative effects on psychological well-being and adherence
 - May be asymptomatic and unrecognized by patients
- Nocturnal episodes
 - Frequently undetected by patients
 - May lead to sudden death when asleep

Unger J. *Diabetes Metab Syndr Obes.* 2012;57-75.

Strategies to Reduce Hypoglycemia Risk Without Compromising Glycemic Control

- Recommend frequent use of BGM to understand when low blood glucose is occurring
- Consider CGM for a patient with frequent unexplained hypoglycemia
- Recommend consistent meal timing
- Recommend consistent activity/exercise
- Reduce insulin dosage, if indicated

Ross SA. *Am J Med.* 2013;126:S38-48.
Unger J. *Diabetes Metab Syndr Obes.* 2012;57-75.

Strategies to Reduce Hypoglycemia Risk Without Compromising Glycemic Control

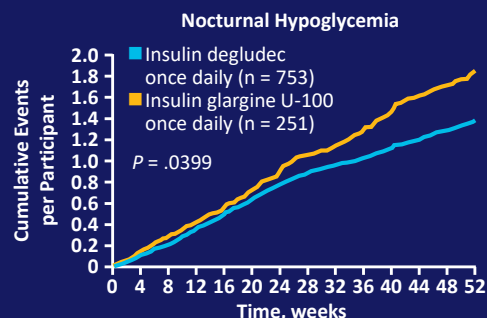
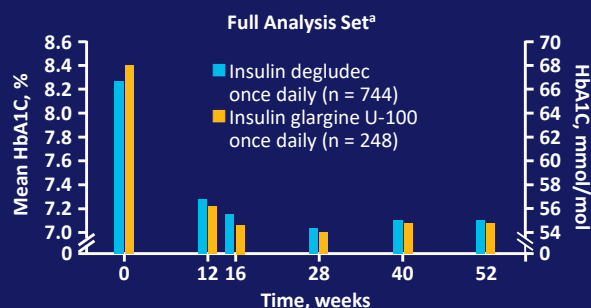
- Consider switching basal insulin if nocturnal hypoglycemia occurs
- Consider gastroparesis (delayed gastric emptying) if post-meal hypoglycemia and then hyperglycemia occur
- Consider insulin misdosing
- Teach the patient how to respond to hypoglycemia (ie, rule of 15)

Ross SA. *Am J Med.* 2013;126:S38-48.
Unger J. *Diabetes Metab Syndr Obes.* 2012;57-75.

Things to Consider

- Would switching basal insulin be an option for LaWanda?
- What else can be done to help reduce her risk of hypoglycemia?

Degludec vs Glargine U-100 in Basal-Bolus Treatment With Prandial Insulin Aspart in T2D Patients



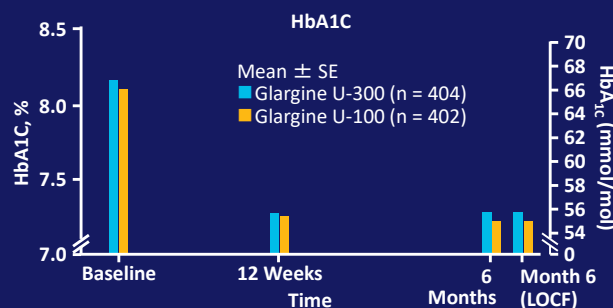
Rates of overall confirmed hypoglycemia and nocturnal confirmed hypoglycemia were lower with degludec vs glargine

^aMet noninferiority criteria.

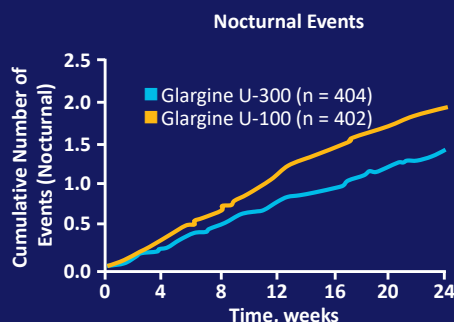
Please see additional clinical studies comparing degludec and glargine U-100 and the meta-analysis: Russell-Jones D, et al. *Nutr Metab Cardiovasc Dis*. 2015;25:898-905. Refer to prescribing information for additional safety data for degludec and glargine U-100.

Garber AJ, et al. *Lancet*. 2012;379:1498-507. Reprinted from *The Lancet*, Vol 379, p. 1498-1507, Copyright 2012, with permission from Elsevier.

Glargine U-300 vs Glargine U-100 in T2D Patients Using Basal and Mealtime Insulin



Least squares mean difference -0.00% (95% CI, -0.11 to 0.11)
 $(-0.00 \text{ mmol/mol } [-1.2 \text{ to } 1.2])^a$



(36% vs 46% with glargine U-100; RR, 0.79
 [95% CI, 0.67-0.93]; $P < .005$)

Rates of one or more confirmed or severe nocturnal hypoglycemia were lower with glargine U-300 vs glargine U-100

^aMet noninferiority criteria.

Please see additional clinical studies comparing glargine U-300 and glargine U-100 and the meta-analysis: Ritzel R, et al. *Diabetes Obes Metab*. 2018;20:541-48. Refer to the prescribing information for additional safety data for glargine U-300 and glargine U-100.

Riddle MC, et al. *Diabetes Care*. 2014;37:2755-62. American Diabetes Association, 2014. Copyright and all rights reserved. Material from this publication has been included with the permission of American Diabetes Association.

Conclusion

- There are significant differences between basal insulins in terms of PK and PD and rates/times of hypoglycemia
- Choosing a newer ultra-long-acting basal insulin decreases the risk of hypoglycemia
- If hypoglycemia occurs, switching to a different insulin is appropriate

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Contact Information

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Abbreviations and Acronyms

BGM = blood glucose monitoring
CGM = continuous glucose monitoring
HbA1C = glycated hemoglobin
LOCF = last observation carried forward
PD = pharmacodynamics
PK = pharmacokinetics
T2D = type 2 diabetes