

Evaluating New-Generation Basal Insulin Therapy

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Sample of Online Posttest

Choose the best answer for each of the following:

1. A 49-year-old woman with type 2 diabetes (T2D) is currently taking metformin 1000 mg twice a day plus empagliflozin 25 mg once daily with an inadequate response. Her physician is considering prescribing a new long-acting insulin product that closely resembles endogenous insulin secretions for better glycemic control. Which of the following statements of therapy for T2D is true?

- Recent studies reveal that long-acting insulin should be initiated *only* after 3 or more oral agents were not effective in achieving normoglycemic levels.
- Studies suggest that early interventions with long-acting insulin therapy are not recommended because hypoglycemic episodes are very likely to occur.
- Inadequate glycemic control is most likely due to nonadherence, and no changes should be made to current regimen.
- Evidence suggests that early intervention with long-acting insulin has long-term benefits.

2. SP is a 52-year-old man who was diagnosed with T2D 18 months ago. He has been taking a sulfonylurea and initially responded well to therapy but, over the last 6 months, he has gained weight and failed to achieve his personalized glycated hemoglobin (A1C) goal of less than 7%. At a recent follow-up visit with his provider, he was prescribed a basal insulin regimen using neutral protamine Hagedorn (NPH). However, SP finds it difficult to adhere to a lunchtime injection of insulin. His provider is considering switching

SP to an ultra-long-acting basal insulin. Although SP likes the idea of a once-daily injection, he is worried about hypoglycemia and more weight gain. Should SP expect episodes of hypoglycemia or weight gain?

- SP should expect to achieve normoglycemic levels but can anticipate frequent episodes of hypoglycemia.
- SP should remain on his current insulin regimen because it has been reported that long-acting basal insulins are not as effective in improving blood sugar as the older short-acting basal insulins.
- Although SP should not be expected to gain weight with a long-acting basal insulin, it is likely that he will not reach his target A1c level of less than 7%.
- Studies show that newer long-acting formulations of basal insulin are as effective as older basal insulins with less risk of nocturnal or severe hypoglycemia at any time of the day.

3. Which of the following is a long-term result of significant hyperglycemia?

- Decreased risk of fatal cardiovascular events
- Decreased medical costs due to management of comorbid conditions
- Lower risk of cerebral infarction or hemorrhage with a first stroke
- Peripheral arterial disease is common in people with significant hyperglycemia.

- 4. Which of the following is TRUE regarding the effective management of diabetes?**
- Studies have shown that clinical inertia is NOT a barrier to effective diabetes management because physicians know that many patients do not adhere to prescribed medication protocols.
 - The use of insulin should be reserved for patients with significant hyperglycemia, and it should be prescribed after oral antidiabetic alternatives have been exhausted.
 - Patients should be encouraged to maintain healthy, active lifestyles at all stages of diabetes and should only be prescribed pharmacotherapy when they fail to do so.
 - Patients need to be educated about symptoms and treatment of hypoglycemia, and the importance of frequent blood glucose monitoring should be emphasized.
- 5. From the following scenarios below, select the one that BEST demonstrates clinical inertia:**
- LT is a 40-year-old woman with T2D who is resistant to transitioning to insulin therapy because she feels it will make her gain weight. Her provider addresses her concerns by referring her to a nutritionist who can teach her how to eat healthier foods and develop a more active lifestyle.
 - JA is a 56-year-old man who is concerned with feeling dizzy if he begins adding insulin to his current oral antidiabetic regimen. His provider advises JA to begin the new insulin therapy and monitor blood sugar more often.
 - PM is a 60-year-old man who is very compliant with his current antidiabetic regimen. After several months of not achieving his target A1C, his provider suggests changing his current insulin regimen to a longer-acting formulation. On PM's next visit, his A1C level is on target.
 - Dr. Bob recently attended a continuing education seminar on the benefits of initiating longer-acting basal insulins in patients with T2D. One of Dr. Bob's patients is DM, a 41-year-old woman with T2D who is currently taking 3 different antidiabetic agents. DM manages a large company, does not make time to exercise or eat home-cooked meals, and often does not have optimal glycemic control. Despite knowing that DM could benefit from a longer-acting insulin formulation, Dr. Bob decides not to change her current regimen because of DM's dietary nonadherence.
- 6. MT is a 54-year-old assistant principal who was diagnosed with T2D 8 years ago. She has a body mass index of 25, blood pressure of 150/90 mm Hg with antihypertensive medication, and her most recent A1c was 9.5% despite 1000 mg BID of metformin. What do you suggest?**
- Increase the metformin dose.
 - Begin a preprandial insulin with all meals.
 - Begin basal insulin with U-100 insulin degludec.
 - Add a premixed insulin twice daily.
- 7. Insulin glargine U-300 and insulin degludec U-200 should be injected:**
- Before meals
 - Immediately after meals
 - Once daily
 - Twice daily
- 8. Insulin degludec at both concentrations has a duration of action of more than ____ hours.**
- 25
 - 32
 - 42
 - 52
- 9. Insulin glargine U-300 has a half-life of ____ hours.**
- 12
 - 16
 - 19
 - 24
- 10. One of the most significant differences between the longer-acting basal insulins degludec at both concentrations and glargine U-300 and the earlier generation detemir and glargine U-100 is:**
- The lack of injection-site reactions with the newer insulins
 - Significantly lower rates of hypoglycemia, particularly nocturnal hypoglycemia, with the newer insulins
 - Significantly better glycemic control with the newer insulins
 - Significantly greater weight loss