

Case Study Responses

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Note: Readers are encouraged to visit www.InsulinJournal.com to review the details of a Case Study published in the October 2006 issue of *Insulin*.

This was the case of a 48-year-old Hispanic male with type 2 diabetes mellitus (DM) who presented with elevated levels of glycosylated hemoglobin (A1C). He had presented 2 years prior for treatment and was currently taking metformin 1000 mg BID, insulin glargine 30 U QHS, and other medications. His diet was high in carbohydrates.

Question 1. What is the most likely explanation for the elevation in A1C?

Answer: b. Postprandial glucose elevations.

Based on the patient's dietary history, A1C results, and postprandial glucose value in the office, postprandial glucose elevation is the most likely cause of the elevation in A1C. In patients with A1C values in this range (ie, 8.2%), postprandial glucose elevations contribute ~40% to 50% of the A1C elevation (Monnier L et al. *Diabetes Care*. 2003;26:881-885).

Question 2. What would be the best way to confirm the diagnosis?

Answer: d. All of the above.

Two-hour postprandial glucose testing on a consistent basis by the patient (answer a) would be the best way to confirm the diagnosis of postmeal hyperglycemia. In addition, it would provide the patient with feedback on how food choices affect glucose values. Answers b (confirm the meter's readings with the laboratory and control solutions) and c (have the patient perform some weekend fingerstick tests) would provide additional data on the hyperglycemia and support the diagnosis.

Question 3. What would be the most logical form of treatment?

Answer: a. Diet modification and initiation of a rapid premeal insulin analogue.

Use of a rapid-acting insulin analogue is the surest way to improve postprandial glucose elevation. A rapid-acting analogue peaks at a more physiologic time (1 to 2 hours postprandially) than regular insulin, with a lower incidence of hypoglycemia. Adding a glitinide will add little to current sulfonylurea therapy. Increasing basal insulin may increase the risk of hypoglycemia and not adequately provide postmeal coverage of glucose elevations. Initiation of premeal insulin, as well as dietary modification, would be the best option. Insulin analogues administered 0 to 15 minutes before eating will help to provide better postmeal glucose values. Dosing is best determined based on documented preprandial and 2-hour postprandial glucose values.

Question 4. If the treatment choice above does not lead to optimal glycemic control, what other options are available?

Answer: Pramlintide can be used as adjunctive therapy for patients in whom mealtime insulin therapy does not achieve desired glucose target levels despite optimal insulin treatment with or without concurrent sulfonylurea or metformin therapy. Pramlintide reduces postprandial hyperglycemia and glucose fluctuations. Studies have shown that it improves glycemic control with mean reduction of weight. Nausea and anorexia are the most common side effects. Dosing for patients with type 2 DM is initiated at 60 µg SC just before meals. Dosing can be escalated to 120 µg after 3 to 7 days if significant nausea does not occur. Because of the risk of hypoglycemia, premeal insulin should be reduced by 50% when pramlintide treatment is initiated, and patients should be closely monitored.

Readers are invited to consider a new Case Study (see page 41) and submit responses to www.InsulinJournal.com before the deadline.