

Case Study 3: Y.L.

Scenario

Y.L. makes an appointment to come to the clinic where you are employed. She has been complaining of chronic fatigue, increased thirst, constantly being hungry, and frequent urination. She denies any pain, burning, or low back pain on urination. She tells you she has a vaginal yeast infection that she has treated numerous times with OTC (over-the-counter) medication. She admits to starting smoking since going back to work full time as a clerk in a loan company. She also complains of having difficulty reading numbers and reports making frequent mistakes. She says by the time she gets home and makes supper for her family, then puts her child to bed, she is too tired to exercise. She reports feet hurt; they often “burn or feel like there are pins in them.” She reports that after her delivery, she went back to her traditional eating pattern which you know is high in carbohydrates.

In reviewing Y.L.’s chart, you notice she has not been seen since the delivery of her child 6 years ago. She has gained a considerable amount of weight; her current weight is 173 lb. Today her BP is 152/97 mm Hg and her plasma glucose is 291 mg/dL. The PCP (primary care provider) orders the following labs: UA, HbA1c (hemoglobin A1c), fasting CMP, CBC, fasting lipid profile, and a baseline 24-hour urine collection to assess Creatinine clearance. The lab values are as follows: fasting glucose 184 mg/dL, A1c 10.4, UA +glucose, - ketones, cholesterol 256 mg/dL, triglycerides 346 mg/dL, LDL (low-density lipids) 155 mg/dL, HDL (high-density lipids) 32 mg/dL, ratio 8.0. Y.L. is diagnosed with type 2 diabetes.

After meeting with Y.L. and discussing management therapies, the PCP decides to start MDI (multiple dose injection) insulin therapy and have the patient count carbohydrates. Y.L. is scheduled for education classes and is to work with the diabetes team to get her blood sugar under control.

1. Identify the three methods used to diagnose DM.
 1. HGB-A1C (hemoglobin A1C)
 2. 2 HR Postprandial Oral Glucose Tolerance Test (OGTT)
 3. Fasting Blood Glucose
 4. Random Blood Glucose (must have symptoms of hyperglycemia or hyperglycemic crisis to be classified as DM)
2. Identify three functions of insulin.
 1. Counter regulatory hormones (glucagon, epinephrine, growth hormone, cortisol)
 2. Stimulate glucose production and release by the liver
 3. Help maintain normal blood glucose levels (decrease movement of glucose into cell)
3. Insulin’s main action is to lower blood sugar levels. Several hormones produced in the body inhibit the effects of insulin. Identify three.
 1. Glucagon
 2. Epinephrine
 3. Growth hormone
4. Y.L. was stated on lispro (Humalog) and glargine (Lantus) insulin with carbohydrate counting. What is the most important point to make when teaching the patient about glargine?

The most important thing to teach the patient about glargine, is that it is long-acting insulin and needs to be given at the same time everyday and CANNOT BE MIXED IN THE SAME SYRINGE WITH OTHER INSULINS.
5. Because Y.L. has been on regular insulin in the past, you want to make sure she understands the difference between regular and lispro. What is the most significant difference between these two insulins?

Lispro is absorbed much faster than regular insulin and should be administered 15 minutes before meals. It has an onset of 15-30 minutes.

6. What is the peak time and duration for lispro insulin?

The peak time for lispro is 30-90 minutes with a duration of 3-5 hours.

7. Y.L. wants to know why she can't take NPH and regular insulin. She is more familiar with them and has taken them in the past. Explain why the provider chose lispro and glargine insulin over NPH and regular insulin?

Lispro and glargine provide better glycemic control rather than NPH and regular insulin. Lispro has a much quicker onset than NPH and regular insulin providing a better way to maintain BG levels quicker and before meals, and Glargine has a much longer duration than NPH and regular insulin lasting 24+ hours for glycemic control. Using these two insulins provides better glycemic control and allows the patient to not worry as much regarding scheduling insulin doses and becoming hypo or hyperglycemic as easy- due to missing doses or late doses of insulin.