

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.
Three methods used to diagnose diabetes mellitus are a Hemoglobin A1c, random blood glucose, and a 2-HR postprandial oral glucose tolerance test.
2. Identify three functions of insulin.
Three functions of insulin are that it transports and metabolizes glucose for energy, it controls the blood glucose levels, and it inhibits the breakdown of stored protein, fat, and glucose.
3. Insulin’s main action is to lower blood sugar levels. Several hormones produced in the body inhibit the effects of insulin. Identify three.
Three hormones that inhibit the effects of insulin are glucagon, epinephrine, and cortisol.
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 point to make when teaching the patient about glargine is that it is a long duration insulin, and you can take it any time of the day, but it needs to be at the same time every day.
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?
The most significant difference between regular insulin and insulin lispro is that insulin lispro you need to take it with meals or within 15 mins of eating a meal. Regular insulin is for routine treatment, and you take it around 20-30min before a meal and you will give this shot 1-2 times per day.
6. What is the peak time and duration for lispro insulin?
The peak for insulin lispro is 30min-90min and the duration is 3-5hrs.

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?

The provider chose insulin lispro and glargine insulin instead of NPH and regular insulin because your provider is putting you on an insulin pump and you will be able to inject the insulin lispro into your pump 15 min before every meal to help treat postprandial hyperglycemia. Your provider also chooses glargine insulin because it is a long duration, and you will only have to give it to yourself once a day at the same time every day. The reason why your provider didn't choose NPH, and regular insulin is because it takes it longer to start working and you would have to give those insulins to yourself a lot more often and you would have to wake up throughout the night to administer them to yourself. This is why your provider chose lispro and glargine insulin over NPH and regular insulin.