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.

The methods used to diagnose DM are Hb A1C, Fasting Blood Glucose and, Random Blood Glucose and Oral Glucose Tolerance Test.

2. Identify three functions of insulin.

Three functions of insulin are lowering blood glucose levels, control postprandial hyperglycemia and maintain basal glycemic effect in the body.

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 counterregulatory hormones would be Growth Hormone, Cortisol and Epinephrine.

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 teaching on Lantus would be that patient can take insulin anytime of the day, but she must administer it the same time everyday for the best benefit of the medication. Administering before bed is preferred.

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?

Insulin Lispro is a rapid acting insulin which means it reduces BG levels quickly and patient should administer this insulin before a meal to prevent hypoglycemia. Regular insulin, though a short acting insulin takes longer to peak compared to Lispro and lasts longer in the body as well. Regular insulin is used more to keep basal glycemic control within the body and in SSI coverage.

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

The peak time for Lispro is 15-30 minutes and the duration of the insulin is 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?

Though NPH is an intermediate acting insulin and has a duration of 14-24 hours the patient would need multiple injections of both NPH and regular instead of multiple injections of Lispro which is a rapid acting and Glargine which only needs to be administered once a day at the same time every day. It allows for better control of the insulin over night as the duration is 24 hours which makes it ideal for bed time administration.