Case Study 5: R.P. **Lehne Ch. 57**

Scenario

R.P. is a 19-year-old female who has been complaining to her mother of being thirsty all the time and that she has to frequently leave class to go to the bathroom. R.P's mother takes her to the local clinic. R.P.'s vital signs are T 98.6 F., HR 80 beats/min, RR 18 breaths/min. and blood pressure 138/88 mm Hg. She weighs 161 pounds and is 5 feet, 4 inches tall with a BMI of 28.7

The HCP orders lab work and she is to return to the clinic in 1 week. R.P.'s lab results are

WBC 5200/mm^3	RBC 5 million/mm^3
BUN 22 mg/Dl	Creatinine 1.4 mg/Dl
Potassium 3.5 mEq/L	Sodium 144 mEq/L
Fasting BG 212 mg/Dl	Hb A1C 9.8% T/Hgb
Total cholesterol 230mg/Dl	Triglycerides 167 mg/Dl
LDL 200 mg/Dl	HDL 40 mg/Dl

R.P. is diagnosed with T2DM and prescribed metformin 500 mg twice daily with food.

1. The patient's mother asks which blood sugar test is the most significant one in determining a person is diabetic. What is your best response as a nurse?
   I would inform the patient's mother that blood glucose levels tend to fluctuate throughout the day and that they are not always an accurate indicator of diabetes. Hemoglobin A1C is a better indicator because it provides a look at the average blood glucose levels over the course of three months. This gives us a more objective look at how blood glucose levels are doing.

2. You are discussing the metformin with R.P. and her mother.
   a. What is the classification of the drug? Antidiabetics, Biguanides
   b. What is the best explanation for the use of this drug? Metformin is a drug used with Type II Diabetes that decreases the amount of glucose absorbed in the intestines. Consequently, the liver will produce less glucose and insulin sensitivity will be improved.
   c. What side effects are most common with metformin? GI upset (and rarely lactic acidosis)
   d. Prolonged use of metformin placed RP at risk for what vitamin deficiency? Vitamin B12
   e. Which lab value will be monitored while RP is taking metformin? Blood sugar, HA1C, GFR, and Vitamin B12

3. R.P.'s current BMI is 28.7, what health promotion strategies would be included in patient health teaching?
   I would teach my patient to eat a healthy, balanced diet that is low in simple carbohydrates and high in complex carbohydrates that help stabilize the blood glucose throughout the day. In addition, I would have her participate in some form of resistance training three times a week and at least 150 minutes of aerobic exercise. These efforts will help RP lose weight and reduce her insulin resistance while improving her cholesterol levels.

Six months later RP returns to the clinic for a follow-up visit. Her BG is not well controlled, and the HCP adds glipizide 4 mg by mouth daily. RP is also given a glucose monitor with instruction to check her BG every morning and every evening before meals. RP has not managed to lose weight.

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1. RP asks why she has to take another medication. What is the nurses best response?
   Since your blood glucose is not well controlled and you are not using weight, we need to try another medication to see if we can manage the diabetes better.
2. You are discussing the glipizide with R.P. and her mother.
   a. What is the classification of the drug? Sulfonylureas
   b. What is the best explanation for the use of this drug? This medication is used in combination with diet and exercise to control blood sugar and stimulates the pancreas to produce more insulin.
   c. What side effects are most common this medication? GI upset, dizziness or drowsiness, tremors, or skin irritation.

One year later R.P. leaves work with due to nausea and vomiting. When she arrives home, she tells her mother she has abdominal pain, muscle pain, and headache. Her mother gives RP an over the counter medication for nausea and vomiting. Several hours later her mother observes that RP is very drowsy and has a weak, rapid pulse. Her mother checks RP's blood glucose, and it is 720 mg/Dl. After arriving at the emergency department, RP admits she quit taking her medication one month ago.

Lab & Diagnostic Testing Results

Serum glucose 421	Sodium 145	Potassium 6.0
BUN 40	Creatine 2.0	AST 21 IU/L
ALT 27 IU/L		
Serum ketones - positive		Serum pH – 7.42
Urine ketones – positive		

After viewing the lab results the HCP orders an insulin infusion of regular insulin in 100 ml of 0.9% saline titrated per protocol orders.

1. The nurse is aware the regular insulin will begin the correct which laboratory values?
   Serum glucose, BUN, creatinine, serum and urine ketones
2. What is the priority nursing intervention while RP is receiving intravenous insulin?
   Monitor potassium levels closely.
3. The regular insulin infusion was begun at 0730. When will the nurse begin to monitor for any symptoms of hypoglycemia?
   0830 or 0930 (1-2 hours after administration)

R.P. recovers and will be going home with insulin glargine 36 units subcutaneous injection once daily.

1. What patient teaching should R.P. receive before leaving the hospital? Should RP's mother be present during the teaching?
   Educate RP and her mom on the S/S of hyperglycemia, hypoglycemia, and how to treat each. In addition, I would educate them on how to draw up insulin properly, dispose of the needles and syringes,

and to rotate the injection sites with at least one inch between each site. I would let RP do her own injections as much as possible during her hospital stay and utilize the teach back method to ensure she has a good understanding. It is crucial for RP's mom to be present, so she has support during her treatment.

2. What side effects or complications of insulin glargine should you teach RP about?
   May experience hypoglycemia, swelling or weight gain, allergic reaction, or thickening of the skin at the injection site when taking this medication. Notify your doctor if you experience rapid weight gain or swelling, shortness of breath, or signs of low potassium (leg cramps, constipation, changes in heartbeat, and muscle weakness.)