

**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 <sup>3</sup>	RBC 5 million/mm <sup>3</sup>
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?

**The most significant blood sugar test to diagnose diabetes is an A1C test. This test shows the average level of blood sugar across the span of three months. This test is used to diagnose diabetes because you can see a trend in blood sugar levels rather than using a finger stick test which only shows blood sugar levels at one point in time.**

2. You are discussing the metformin with R.P. and her mother.
  - a. What is the classification of the drug?

**Hypoglycemic**

- b. What is the best explanation for the use of this drug?

**Metformin works by reducing the amount of blood sugar that the liver releases into the blood. This drug also makes your body respond better to insulin.**

- c. What side effects are most common with metformin?

**The most common side effect of Metformin are Cobalamin deficiency, diarrhea, indigestion, nausea and vomiting, and malabsorption syndrome.**

- d. Prolonged use of metformin placed RP at risk for what vitamin deficiency?

**Vitamin B12 deficiency**

- e. Which lab value will be monitored while RP is taking metformin?

**Kidney function, hemoglobin A1C, and a CBC, serum creatine, 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 R.P. to increase her exercise. Walking or participating in a sport that she likes could be helpful to decrease her weight and control her diabetes better. I would also teach R.P. to manage her diet especially since she is a newly diagnosed diabetic.

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.

1. RP asks why she has to take another medication. What is the nurses best response?

**Glipizide and Metformin are used in combination to treat high blood sugar that is caused by type 2 diabetes. Glipizide helps stimulate the release of insulin from the pancreas directing the body to store the sugar. Metformin slows the absorption of sugar in the small intestine, stops the liver from converting stored sugar into blood sugar, and also helps the body use naturally produced insulin more efficiently. By using both of these drugs, the body is able to control how much insulin is release and absorbed into the body.**

2. You are discussing the glipizide with R.P. and her mother.
  - a. What is the classification of the drug?

**Sulfonylurea**

- b. What is the best explanation for the use of this drug?

**Glipizide helps stimulate the release of insulin from the pancreas directing the body to store the sugar.**

- c. What side effects are most common this medication?

**Hypoglycemia, constipation, diarrhea, nausea, dizziness, headache.**

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  
Urine ketones – positive

Serum pH – 7.42

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?

**It will decrease the blood sugar levels which was at 720mg/DL.**

2. What is the priority nursing intervention while RP is receiving intravenous insulin?

**The priority nursing intervention while RP is receiving IV insulin is to monitor for hypoglycemic shock and to be checking blood sugar levels consistently.**

3. The regular insulin infusion was begun at 0730. When will the nurse begin to monitor for any symptoms of hypoglycemia?

**The nurse should watch for s/s of hypoglycemia within 15 minutes of starting the IV. The onset for this medication is 15 minutes and usually peaks within 30 minutes.**

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?

**R.P. should know how to give herself the insulin injection effectively and know the signs and symptoms of hyperglycemia and hypoglycemia. She should also know that the onset of this medication is 1 ½-2 hours. This is a long last medication that lasts for 24 hours.**

2. What side effects or complications of insulin glargine should you teach RP about?

**R.P. should know that this medication can cause lipodystrophy, hypoglycemia, abnormal weight gain, and a possible rash. R.P. should also know not to mix this insulin with other types of insulin.**