

Scenario: Type I DM

You work in the diabetes (DM) center at a large teaching hospital where you meet K.W. She is a 20-year-old Hispanic woman who was released from the hospital 2 days ago after being diagnosed with type 1 DM. Nine days ago, K.W. went to see the provider after a 1-month history of frequent urination, thirst, severe fatigue, blurred vision, and some burning and tingling in her feet. She attributed those symptoms to working long hours at the computer. Her random glucose level was 410 mg/dL (22.8 mmol/L). The next day her laboratory values were as follows: fasting glucose 335 mg/dL (18.6 mmol/L), A1C 8.8%, cholesterol 310 mg/dL (8.03 mmol/L), triglycerides 300 mg/dL (3.39 mmol/L), HDL 25 mg/dL (0.65 mmol/L), LDL 160 mg/dL (4.14 mmol/L), ratio 12.4, and creatinine 0.9 mg/dL (80.0 μmol/L). Her body mass index was 29.6 with a BP 160/96 mm Hg. She was admitted to the hospital for control of her glucose levels and the initiation of insulin therapy with carbohydrate (CHO) counting. After discharge, K.W. has been referred to you for diabetes education. You are to cover 4 areas: pharmacotherapy, glucose monitoring, basic nutrition therapy, and exercise.

1. What is the overall teaching goal with a patient newly diagnosed with type 1 DM?

How to control and manage her diabetes. The patient should completely understand the importance of management of blood glucose through insulin therapy, monitoring levels, nutrition, and exercise. They should be able to recognize symptoms of hypoglycemia and hyperglycemia such as severe fatigue, diaphoresis, frequent urination, and thirst.

2. What assessments do you need to make before starting your session?

We would need to assess her knowledge on the condition, her preferred teaching style/method, as well as her emotional status such as readiness to learn.

3. K.W. was started on sliding scale lispro (Humalog) four times daily and glargine (Lantus) insulin at bedtime. What are the significant differences between the 2 therapies?

Lispro is rapid acting and is taken before meals to control levels after meals. Onset is 15 minutes, peak is 30 - 90 minutes, and duration is 3-5 hours

Glargine is long acting insulin given once daily. It has no peak but lasts about 24 hours

4. Outline important content to include about insulin therapy.

Rotate sites and proper injection technique, purpose of both lantus and lispro insulin, how to properly store insulin, symptoms of hypo and hyperglycemia to look out for and how to manage them.

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5. What specific points would you include about managing insulin therapy? **Select 5 options.**

- a. Store unopened insulin in the freezer.
- b. The insulin can be used if it is yellow but not expired.
- c. The fastest subcutaneous absorption is from the abdomen
- d. Administer the lispro (Humalog) within 15 minutes of eating.
- e. Ideally, the glargine (Lantus) should be administered at bedtime.
- f. A prefilled syringe can be stored for 24 hours at room temperature.
- g. Always administer the injections in the same, easy-to-reach location.
- h. The current vial of lispro (Humalog) can be kept at room temperature for 1 month.
- i. Two injections will be needed to administer lispro (Humalog) and glargine (Lantus).

6. What is the best way to determine whether K.W. can safely self-administer insulin?

- a. Having her describe the process step-by-step
- b. Evaluating her A1C levels and daily glucose logs
- c. Observing her draw up and administer an insulin dose
- d. Asking her to rate her confidence in her ability to give a self-injection

7. Outline important content to review about glucose monitoring.

Glucose range should be 70-99, check before meals, at bedtime, and as needed – proper fingerstick technique and meter use

8. K.W. states her diet is mostly fast foods. The foods she cooks at home are high in starch and fat. Her mealtimes often vary from day to day because of her work schedule. What is CHO counting? Why might this method work well for K.W.?

Carbohydrate counting is tracking intake of carbs and matching it to the insulin dose. This could work for K.W so she could continue to have her meal of choice while keeping glucose levels stable.

9. Outline important points to cover about a basic nutrition plan with CHO counting.

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Read food labels and eat according to the portion sizes for control. She could meal plan to remain constant in her Carb intake. It is also recommended to choose complex carbs over simple sugars

10. K.W. states that she currently does not exercise at all. What benefits will K.W. receive from taking part in an exercise program?

Exercise will help with weight management and lowering blood pressure and cholesterol. It can also reduce stress

11. What do you need to teach K.W. about safe exercise?

Remember to stay hydrated and wear proper footwear (nothing too tight).

Check blood glucose before, during and after exercise

12. Describe 3 suggestion you can make to help her deal with her condition and follow the treatment plan.

Plan meals ahead to avoid relying on fast food

It may be helpful to set reminders for glucose checks

Join a support group to connect with other managing type 1 diabetes

13. What outcomes could you use to determine if your teaching with K.W. was effective?

KW implements a daily routine and schedule for checking glucose levels by implementing reminders on her phone.

CASE STUDY PROGRESS

K.W. calls the clinic several days later reporting that she has “the flu.” She has been nauseated and vomited once during the night. She has had 2 loose stools. She states that she does have a few chills and may have a low-grade fever but does not have a thermometer. She did not check her glucose level this morning or take her insulin because she has not eaten.

15. Based on these findings, you recognize that K.W. may be experiencing _____1_____. The priority intervention is to _____2_____.

Options for 1	Options for 2
hyperglycemia	administer the normal morning insulin dose
hypoglycemia	ingest a rapid acting carbohydrate
	measure her glucose level

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Use an X to indicate whether the instructions below are Indicated (appropriate or necessary) or Contraindicated (could be harmful) for K.W. about managing illness and DM.

Instruction	Indicated	Contraindicated
a. Check glucose level every 2-3 hours throughout the day.	✓	
b. Maintain strict NPO status		✓
c. Use over-the-counter medications for symptom control.	✓	
d. Obtain a yearly influenza vaccine.	✓	
e. Take insulin as ordered; call back if there you have concerns so the HCP can adjust insulin doses	✓	
f. Someone should be with her in case of an emergency.	✓	