

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 mcmol/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?

The overall goal is to educate them with lifestyle modifications to manage and control their blood glucose levels like good nutrition, and exercise.

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

I will need to assess the client's understanding of her diagnosis, her emotional stability, and if she has had any previous diagnosis and is she compliant with her health otherwise.

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 fast acting with an onset of 15min, peak of 1/2 to one hour, and duration of 3-4 hrs. Lantus has no peak and longer than 24hr duration.

4. Outline important content to include about insulin therapy.

The dosage, onset, peak, duration, how to know when she needs the insulin, her diet modifications, how to inject the insulin, the symptoms of hypoglycemia and what to do if that occurs.

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.

It evaluates her med compliance, her response to food and activity, and if her target glucose levels are met.

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.?

This is where patients monitor the amount of carbohydrates they are going to eat/drink and base their insulin administration on that. This would be great for her as it would allow her to have more knowledge and control on what kinds of foods she may eat.

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

CHO should be about 150-250 g/day of her diet. I would teach her foods that have CHO's, how to read food labels and know measuring sizes.

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 would help with the function of her insulin because muscle activity improves glucose intake for energy.

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

Monitor her blood glucose before and after exercise.

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

Attend her follow up appointments, monitor her glucose when needed, and comply with her insulin prescription.

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

How she administers the insulin, knows the hypoglycemia signs and symptoms, knows when and how to check her blood glucose, knows about her CHO diet.

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.	X	
b. Maintain strict NPO status		X
c. Use over-the-counter medications for symptom control.	X	
d. Obtain a yearly influenza vaccine.	X	
e. Take insulin as ordered; call back if there you have concerns so the HCP can adjust insulin doses	X	
f. Someone should be with her in case of an emergency.	X	