

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?

I believe that the overall teaching goal with any patient that has a new diagnosis is to provide them sufficient knowledge of self-care, how the disease works, and how to manage a new lifestyle in order to promote self-empowerment. No one wants to be told that they now have a disease or a disorder that will cause complications in their life moving forward. So to help them feel encouraged and confident, many methods of care should be provided so the care can be tailored to the client.

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

I would start off by introducing myself, and assessing what K.W. already knows of her new diagnosis. I would then provide further teaching of the pathophysiology, what is used to manage and treat, and what strategies to use to begin her new lifestyle with DM.

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?

Humalog is a short acting insulin that has a quicker onset and Lantus is a long acting insulin that has a greater duration. A sliding scale is used to determine the required amount of units of insulin to be administered depending on the POC glucose assessment.

4. Outline important content to include about insulin therapy.

Before administering insulin, the previous injection site must be assessed and rotated to prevent complications such as lipohypertrophy, lipodystrophy, lipoatrophy which can impair absorption. The glucose level must be assessed, and insulin should be administered depending on the scale or required dose regardless of scale. Signs and symptoms of both hyperglycemia and hypoglycemia should be taught to learn how to recognize. Cool and clammy gets them candy and hot and dry, sugar is high are great ways to easily remember signs of hyperglycemia and hypoglycemia.

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

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- 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 monitoring should be done to create a trend or timeline of your blood glucose. It is important to review before your meals to ensure that consumption of food won't elevate your blood glucose levels. If this is possible then insulin or other medications can be administered.

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.?

CHO counting is known as carb counting and is used daily to manage blood sugar by monitoring the intake of carbohydrates consumed from food. Although K.W. has an irregular meal schedule and has different styles of food, mostly high in starch and fat, she is able to estimate her carbohydrate intake and estimate her blood glucose level when life makes management hard. It allows flexibility.

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

With K.W., it would be extremely important to teach her what carbohydrates are. She can be taught what kind of foods are high or low in carbs, and with this she can begin to understand how CHO counting may work. She isn't currently getting the best meals based on the diet she should be on. Fast foods are usually

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high in fats, and the food she cooks at home isn't helpful either. She can be taught to moderate her intake of fast foods, different alternatives to pre-cooked meals, and new recipes she can follow of her favorite foods that are low in carbs.

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

An exercise program would help K.W maintain a balanced weight which improves health overall in all systems and can improve uptake of glucose from the bloodstream.

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

With safe exercise, K.W must understand that her exercise regime doesn't need to be rigorous or extreme. It must be balanced, and tolerable but hard enough to make the effort worth it. K.W shouldn't attempt to quickly lose weight. Losing a pound or two per week is WNL.

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

K.W must set realistic goals, achievements cant be made overnight. The work and management should be consistent. She can find someone to exercise with or listen to music/podcast/show to act as a distractor. She can create a food diary to follow with CHO counting. She can learn what foods create good or bad responses.

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

Her A1C can be reassessed to view how her blood glucose levels have managed over the past 3 months. She can teach back what foods are high and what foods are low in carbohydrates, and what she plans to include in her daily diet. Her weight can be taken to review if exercise is being properly done.

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 hypoglycemia. The priority intervention is to measure her glucose level

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

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
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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