CLASS PREP: Endocrine

Scenario: Type 2 DM

S.S., a 58-year-old Asian woman, comes to the clinic with chronic fatigue, thirst, constant hunger, and frequent urination. She denies any pain, burning, or low-back pain on urination. She tells you she has had frequent vaginal yeast infections that she has treated with over-the-counter medication. She works full time at a bank and states she has difficulty reading numbers and reports, resulting in her making some mistakes. She says, "By the time I get home and make supper, I am too tired to do anything else." She says her feet often "burn or feel like there are pins in them." She has a history of gestational diabetes.In reviewing S.S.'s chart, you note she last saw the provider 6 years ago. Her current weight is 173 lbs (78.5 kg). She is 5'3" (135 cm) tall. Today her BP is 152/97 mm Hg. A random plasma glucose level is 291 mg/dL (16.2 mmol/L). The provider suspects she has developed type 2 diabetes (DM) and orders the laboratory studies shown in the chart.

Laboratory Test Results

Fasting glucose	184 mg/dL (10.2 mmol/L)
Hemoglobin A_{1c} (A_{1C})	8.8%
Total cholesterol	256 mg/dL (6.6 mmol/L)
Triglycer1ides	346 mg/dL (3.91 mmol/L)
Low-density lipoprotein (LDL)	155 mg/dL (4.01 mmol/L)
High-density lipoprotein (HDL)	32 mg/dL (0.83 mmol/L)
Urinalysis (UA)	+ glucose, – ketones

1. Interpret S.S.'s laboratory results.

All of S.S laboratory results came back elevated due to her being type 2 diabetic except for her HDL which are low.

2. Identify 3 methods we use to diagnose DM.

Hemoglobin A1c, fasting plasma glucose levels, Two hour plasma glucose level during OGTT

3. Name 6 risk factors for type 2 DM. Highlight those that S.S. has.

Sedentary lifestyle, obese, gestational diabetes, age, diet, ethnicity

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4. Which of her assessment findings are consistent with type 2 DM?

Her experiencing gestational diabetes, along with fasting blood sugar of 184 mg/dL, and

CASE STUDY PROGRESS

S.S. is diagnosed with type 2 DM. The provider starts her on metformin 500 mg orally each day at breakfast and atorvastatin 20 mg orally at bedtime. She is referred to the dietitian for instructions on starting a 1200-calorie diet using an exchange system to promote weight loss and lower glucose, cholesterol, and triglyceride levels. You are to provide teaching about pharmacotherapy and exercise.

5. How can you incorporate S.S.'s cultural preferences as you develop her teaching plan?

Encourage healthier food alternatives, and collaborate with the dietitian on making cultural foods more diabetic friendly.

6. What is the reason for starting S.S. on metformin?

Metformin is used for long term control of blood glucose levels.

7. Outline the general teaching you would provide S.S. about oral hypoglycemic therapy.

Monitor blood glucose levels as instructed.

Report any signs of lactic acidosis (muscle pain, difficulty breathing, dizziness).

Avoid alcohol as it increases the risk of lactic acidosis.

Take metformin with food to minimize gastrointestinal side effects.

8. What would you teach S.S. to do if she becomes ill with the flu or viral illness?

Contact your healthcare provider but also, continue taking diabetic meds as directed

Monitor blood glucose levels more frequently due to the increased risk of hyperglycemia.

9. What benefits would S.S. receive from exercising?

Exercising helps with weight loss, improves circulation, and helps lower blood glucose levels.

10. What would you teach S.S. about exercise?

Monitor blood glucose before and after exercising, and pack snacks in case you experience hypoglycemia. Avoid working out if blood glucose levels are too high.

11. Besides the dietitian, what interprofessional and community referrals may be appropriate for S.S.?

Diabetic educator, endocrinologist, podiatrist, ophthalmologist

CASE STUDY PROGRESS

S.S. comments, “I’ve heard many people with diabetes lose their toes or even their feet.” You take this opportunity to teach her about neuropathy and foot care.

12. Which symptoms lead you to believe S.S. has some form of neuropathy?

Tingling or numbness in toes, burning pain in the feet, and loss of sensation increases the risk of unnoticed injuries.

13. What other findings in S.S.’s history increase her risk for developing neuropathy?

Consistently high blood sugar, HTN, and sedentary lifestyle.

14. What would you teach S.S. about neuropathy?

Neuropathy is nerve damage caused by prolonged high blood glucose. Symptoms include tingling, numbness, pain, and weakness. Regular foot exams and proper footwear can prevent complications.

15. Because S.S. has symptoms of neuropathy, placing her at risk for foot complications, you realize you need to instruct her on foot care. Outline 5 points you would include when teaching her about foot care for persons with DM.

Inspect feet daily for cuts, blisters, or infections. Wash feet with warm water and mild soap; dry thoroughly, especially between toes. Apply moisturizer to prevent dryness. Wear appropriate fitting shoes. Upon inspecting toes if anything abnormal is found she should consult a podiatrist.

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16. What ongoing monitoring will S.S. need for nephropathy and retinopathy?

Regular BP checks, and monitor A1c. She should also schedule regular eye exams and lipid panels.

17. At the conclusion of the visit, which statements indicate S.S. has an accurate understanding of the teaching you provided about DM? Select 4 correct options.

a. “When I am ill, I do not need to take the metformin.”

b. "The only place it is safe to go barefoot is in my house."

c. "It is best to take the metformin at breakfast and dinner."

d. "Looking at the condition of my feet every day is important."

e. "I will make an appointment with the eye doctor next week."

f. "Taking a walk for at least 20 minutes a day will help my DM."

g. "If I take my medicine, I can eat what I want, and my glucose will be fine."

h. "I will be able to stop the metformin when my pancreas starts working better."

i. CASE STUDY PROGRESS

j. 18. S.S. returns to the clinic 6 weeks later for a follow-up appointment. She met with the diabetic educator and is making changes to her eating habits and has started walking. **For each assessment finding, use an X to indicate whether the interventions were Effective (helped to meet expected outcomes), Ineffective (did not help to meet expected outcomes), or Unrelated (not related to the expected outcomes).**

Assessment Finding	Effective	Ineffective	Unrelated
a. Reports stress incontinence when she coughs, sneezes			X
b. BP 130/78 mm Hg	X		
c. Fasting blood glucose level results: 153 mg/dL	X		
d. Weight loss of 6 pounds (2.7 kg)	X		
e. Reports decreased tingling in her toes.	X		
f. Reports continued blurred vision.		X	
g. Eating dinner with her husband every night.			X
h. Hemoglobin A1C level results: 8.2%	X		
i. Reports of frequent urination		X	