

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)
Triglycerides	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.

Fasting glucose: elevated, poor blood sugar control

Hemoglobin A1c: high, confirms diagnosis of diabetes

Total cholesterol: high, common with diabetes

Triglycerides: high, poor blood sugar control, may be eating diet high in carbs

LDL: high, risk for atherosclerosis, concern w diabetes

HDL: low, obesity or insulin resistance

2. Identify 3 methods we use to diagnose DM.

Fasting glucose , hemoglobin A1c, random plasma glucose

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

CLASS PREP: Endocrine

Older than 45yrs old, BMI over 25, family hx of diabetes, hx of gestational diabetes, hypertension, physical inactivity

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

Chronic fatigue, polydipsia, polyphagia, polyuria, recurrent yeast infection, blurred vision, neuropathy

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?

Incorporating traditional Asian diet, Include family in discussions

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

Is the first line treatment for type 2 diabetes

Can aid in weight loss

Lowers glucose by reducing hepatic glucose production

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

Take metformin with food to reduce GI upset

Monitor blood glucose levels regularly

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

Stay hydrated to prevent dehydration, seek medical attention if unable to eat, vomiting or blood sugar >300

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

Lowers blood glucose, aids in weight loss, reduces cardiovascular risks, improves overall well being and energy levels

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

CLASS PREP: Endocrine

Start with walking 20-30 minutes daily, check feet for sores before and after

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

Podiatrist, physical therapist, diabetes educator, eye doctor

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?

Burning sensation in feet, pins and needles feeling

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

Uncontrolled diabetes, hypertension, dyslipidemia

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

Manage blood glucose to prevent worsening, meticulous foot care to avoid injuries, avoid tight shoes and walking barefoot

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.

1. Inspect feet daily
2. Wash feet daily
3. Wear well-fitting shoes
4. Avoid walking barefoot
5. Trim toenails carefully

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

Annual urine albumin test, regular eye exams, monitor bp and glucose daily

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	