

**Internal Medicine Clerkship**  
Case Discussions

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**Diabetes Mellitus**  
Student Guide

**Objectives:**

1. Identify characteristics and relevant review of systems that suggest diabetes mellitus including polyuria, visual changes, and sensory loss.
2. Assess for familial risk factors including genetic predisposition.
3. Identify key physical exam findings that suggest complications of diabetes including findings on the fundoscopic exam, blood pressure, and diabetic foot exam.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that assess likelihood and presence of complications including HgbA1c, basic metabolic panel, and urine microalbumin/creatinine ratio.
5. Describe a rational and evidence-based approach to treating a patient with diabetes mellitus:
  - a. Describe factors that control symptoms and prevent complications including lifestyle and dietary modifications and medications.
  - b. Describe how to monitor therapy and assess for complications including HgbA1c monitoring, retinal screening, and adherence assessment.
  - c. Describe how to manage common comorbidities including hypertension, hyperlipidemia, and obesity.
6. Describe acute and chronic complications including hyperosmolar state, diabetic ketoacidosis, and macrovascular and microvascular complications.
7. Describe appropriate screening for diabetes including who to screen, recommended tests, and intervals for testing.

**Clinical Case:**

A 58yo with history of hypertension, hyperlipidemia, and obesity presents to your clinic for regular follow-up. He reports he is overall feeling well. He reports his diet has been poor, as he is a truck driver and often is eating at restaurants while on long trips. He is very sedentary at work and is too tired to exercise when he gets home from work. His medications include amlodipine 10mg daily, hydrochlorothiazide 12.5mg daily, and atorvastatin 40mg daily; he reports compliance with these medications.

On physical exam his BP is 134/82, HR 79, and BMI is 37. His exam is notable for central obesity with striae and mild venous stasis changes in his lower extremities bilaterally.

**Questions:**

1. What are the current recommendations for screening for diabetes and how often should patients be screened? Should this patient be screened, and if so how?

The patient obtains the following fasting lab results:

Chem: Na 140, K 3.6, Cl 110, HCO<sub>3</sub> 24, BUN 40, Cr 1.2, Glucose 116

HgbA1c: 6.0%

Lipids: Total 180, LDL 115, HDL 39, Tri 165

**Questions:**

2. Interpret the results. How are prediabetes and diabetes diagnosed? How would you counsel the patient regarding these results, and what recommendations for treatment would you make at this time?
3. Would you recommend metformin to the patient at this time? If you do start someone on metformin, what vitamin should be periodically monitored.
4. What are common risk factors for diabetes?

The patient is counseled regarding lifestyle changes and referred to an obesity medicine specialist for intensive treatment of his weight. He initially loses about 30lbs over six months but then is lost to follow-up in the program. He returns to your clinic two years later for follow-up. His BMI is now 39. He is now noting frequent thirst and increased urination. His repeat labs reveal a hemoglobin a1c of 8.4%. His lipids are controlled as last time.

**Questions:**

5. What are the two main classifications of diabetes and what are their pathologic mechanisms? Which type does this patient likely have? What are other causes of diabetes?
6. What are common symptoms of diabetes?
7. What physical exam components should you assess for in patients with diabetes?

8. What medication would you offer the patient at this time? When would you recommend a follow-up assessment?
9. What is your target hgba1c level? What if he were 80 years old?
10. What are the microvascular complications you should screen patient for and at what intervals?
11. Would you offer him any vaccinations?

After 6 months of diet and exercise, his HbA1c is 7.3%. His symptoms are overall better, and he has been able to lose 5lbs. He was seen by an ophthalmologist and no diabetic retinopathy was noted. His microalbumin/creatinine ratio was normal. His foot exam was also normal.

**Questions:**

12. What are the other classes of anti-diabetic agents, how are they delivered, and what are their mechanisms of action?
13. Which medication would you offer him at this time?
14. What are the current ADA recommendations for blood pressure control in patients with diabetes?
15. What are the current ADA recommendations for lipid control in patients with diabetes?
16. What are the macrovascular complications of diabetes? Should he be started on aspirin?
17. Describe the acute complications of hyperosmolar hyperglycemia and diabetic ketoacidosis and how they are treated.

**References:**

Diabetes Standards of Care Guidelines, 2024.

[https://diabetesjournals.org/care/article-pdf/47/Supplement\\_1/S5/746949/dc24srev.pdf](https://diabetesjournals.org/care/article-pdf/47/Supplement_1/S5/746949/dc24srev.pdf)

Harrison's Principles of Internal Medicine, 21e. Chapter 403: Diabetes Mellitus: Diagnosis, Classification, and Pathophysiology

<https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3095&sectionid=265445787>

Harrison's Principles of Internal Medicine, 21e. Chapter 404: Diabetes Mellitus: Management and Therapies

<https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3095&sectionid=265445871>

Harrison's Principles of Internal Medicine, 21e. Chapter 405: Diabetes Mellitus: Complications

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Harrison's Manual of Medicine, 20e. Chapter 176: Diabetes Mellitus

<https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2738&sectionid=227559769>

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 12: Diabetes

<https://accessmedicine-mhmedical-com.archer.luc.edu/book.aspx?bookID=2715#228239119>

USPSTF Diabetes Recommendation

<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/screening-for-prediabetes-and-type-2-diabetes>