

DoM

DEPARTMENT
of MEDICINE
Improving Lives

OBJECTIVES FOR COMMON CLINICAL PROBLEMS

Diabetes

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Diagnostic criteria for impaired fasting glucose and impaired glucose tolerance
2. Diagnostic criteria for type I and type II diabetes mellitus, based on a history, physical examination, and laboratory testing
3. Pathophysiology, risk factors, and epidemiology of type I and type II diabetes mellitus
4. The basic principles of the role of genetics in diabetes mellitus
5. Presenting symptoms and signs of type I and type II diabetes mellitus
6. Presenting symptoms and signs of diabetic ketoacidosis (DKA) and nonketotic hyperglycemic (NKH)
7. Pathophysiology for the abnormal laboratory values in DKA and NKH including plasma sodium, potassium, and bicarbonate
8. Precipitants of DKA and NKH
9. Major causes of morbidity and mortality in diabetes mellitus (coronary artery disease, peripheral vascular disease, hypoglycemia, DKA, NKH coma, retinopathy, neuropathy—peripheral and autonomic, nephropathy, foot disorders, infections)
10. Laboratory tests needed to screen, diagnose, and follow diabetic patients including: glucose, electrolytes, urea, creatinine, fasting lipid profile, HgA1c, urine microalbumin/creatinine ratio, urine dipstick for protein
11. Non-pharmacologic and pharmacologic (drugs (oral agents and insulins) and side effects) treatment of diabetes mellitus to maintain acceptable levels of glycemic control, prevent target organ disease, and other associated complications

12. The specific components of the Canadian Diabetes Association (CDA) dietary recommendations for type I and type II diabetes mellitus
13. Basic management of diabetic ketoacidosis and nonketotic hyperglycemic states, including the similarities and differences in fluid and electrolyte replacement
14. Basic management of blood glucoses in the hospitalized patient
15. The Somogyi effect and the Dawn phenomenon and the implications of each in diabetes pharmacologic management
16. The fundamental aspects of the Canadian Diabetes Association (CDA) clinical practice recommendations and how they encourage high quality diabetes care
17. Awareness of target levels and basic management of hypertension and hyperlipidemia in the diabetic patient

B. SKILLS: Students should be able to demonstrate specific skills including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
 - Weight changes
 - Hypo- or hyperglycemic symptoms
 - Medication history (adherence, side effects, other medications)
 - Home glucose monitoring results
 - Target organ disease complications (cardiovascular, foot, gastrointestinal, infectious, neurological, sexual, skin, urinary, or vision symptoms)
 - Diet history (total caloric intake, intake of sugar-containing foods, intake of saturated fat and cholesterol, physical activity level, timing of meals)
 - Screen for depression
2. Physical exam skills: Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
 - Skin examination for diabetic dermopathy, furuncles/carbuncles, candidiasis, necrobiosis lipoidica diabetorum, dermatophytosis, and acanthosis nigricans
 - Fundoscopic exam
 - Arterial pulses
 - Peripheral nerves (e.g. monofilament testing)
 - Examination of the feet for corns, calluses, and ulcerations
 - In patients with DKA or NKH evaluate for mental status alterations, Kussmaul's respirations, fruity breath, and signs of volume depletion

3. Differential diagnosis: Students should be able to generate a differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for:
 - Hyperglycemia
 - Hypoglycemia
 - Anion gap acidosis
 - Ketosis
 - Hyperosmolality

4. Laboratory interpretation: Order and interpret diagnostic and laboratory tests based on the differential diagnosis. These may include:
 - Fasting serum GLC
 - Electrolytes, Urea, Cr
 - Serum and urine ketones
 - Serum and urine osmolality
 - HbA1c
 - Fasting lipid profile
 - UA
 - Urine microalbumin/creatinine ratio
 - 24-hour urine for protein and creatinine clearance

5. Management skills: Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
 - Writing appropriate fluid and insulin orders and outline critical steps for the treatment of DKA and DKH
 - Counseling patients regarding basic features of CDA diabetic diet recommendations
 - Instructing patients in home blood glucose monitoring
 - Counseling patients on behavior changes (smoking cessation, medication adherence, poor glycemic control, obesity, hypertension, dyslipidemia, and infection) to avoid the complications of diabetes
 - Counseling patients regarding basic foot care
 - Determining when to institute diet therapy, oral hypoglycemic agents, and insulin therapy
 - Calculating an appropriate insulin dose for a diabetic patient
 - Using community resources (CDA, hospital and community-based education programs) to aid the patient in understanding and managing his or her illness
 - Determining when to obtain consultation from an endocrinologist, nephrologist, ophthalmologist, podiatrist, and dietician
 - Determining when to obtain consultation from a social worker
 - Determining when to obtain consultation from a psychologist