Hyperglycemia – Prediabetes – HM 8

DEFINITION

Hyperglycemia is an excess of glucose in the blood. Prediabetes is a condition when blood glucose levels are higher than normal but not yet high enough to be diagnosed as diabetes. Prediabetes is also known as Impaired Glucose Tolerance (IGT) or Impaired Fasting Glucose (IFG) depending on which test was used to detect it. IGT uses the oral glucose tolerance test and IFG uses the fasting plasma glucose test. Patients with prediabetes are defined by the presence of IFG and/or IGT and/or A1C 5.7–6.4%. Prediabetes is not its own clinical entity, rather, an increased risk for development of diabetes.

SUBJECTIVE

Criteria for testing of prediabetes in asymptomatic adults includes both subjective and objective data. A BMI greater or equal to 25 (BMI 23 in Asian Americans) plus any on the following subjective criteria warrants screening:

1. First-degree relative with diabetes
2. History of CVD
3. History of HTN
4. History of PCOS diagnosis or history of conditions associated w insulin resistance
5. Physical inactivity

Criteria for testing of prediabetes in asymptomatic children/adolescents (after onset of puberty or age 10) includes both subjective and objective data. Individuals who are overweight/obese plus any of the following subjective criteria warrants screening:

1. Maternal history of diabetes or GDM during the child's gestation
2. Family history of DM2 in first- or second-degree relative
3. High-risk race/ethnicity
4. Medical history of conditions associated with insulin resistance

HPI may include:

1. No symptoms
2. Weight changes
3. Fatigue, blurred vision, recurrent vulvovaginal candidiasis
4. History of gestational diabetes or birth weight of newborn 9 lbs. or greater
5. Polydipsia, polyphagia, or polyuria
6. 20% over ideal body weight; sedentary lifestyle
7. Decreased wound healing
8. History of antipsychotic medication therapy, glucocorticoids, thiazide diuretics, some HIV medications increase risk of DM

OBJECTIVE

Criteria for testing of prediabetes in asymptomatic adults includes both subjective and objective data. A BMI greater or equal to 25 (BMI 23 in Asian Americans) plus any on the following objective criteria warrants screening:

1. High-risk race/ethnicity
2. Current HTN (>140/90 mmHg or on therapy for HTN)
3. HDL cholesterol level <35 mg/dL and/or triglyceride level >250 mg/dL
4. PCOS diagnosis or other findings/conditions associated with insulin resistance
5. HIV positive

**For all other patients, testing should begin at age 35

May include:

1. Blood pressure
2. Height and weight

3. BMI; abdominal or visceral obesity
4. Complete physical exam: Acanthosis Nigricans may be noted in axillae, groin, and/or neck as signs of insulin resistance

LABORATORY

May refer for:

1. Hyperglycemia
   a. lab of choice may include one or more of the following:
      i. Fasting plasma glucose (FPG)
         a) Prediabetes: FPG between 100 mg/dl to 125 mg/dl
         b) Diabetes: FPG is > 126 mg/dl
      ii. Oral Glucose Tolerance Test (OGTT)
         a) Prediabetes: 2-hour 75 gram OGTT 140mg/dl to 199 mg/dl
         b) Diabetes: 2-hour 75 gram OGTT 200mg/dl or higher
      iii. Hemoglobin A1C
         a) Prediabetes: A1C 5.7% to 6.4%
         b) Diabetes: A1C 6.5% or higher
2. Glycosuria: Measurement of glucose in the urine is not recommended due to insensitivity. May be due to renal tubular dysfunction or familial renal glycosuria.
3. In symptomatic patients, a random glucose testing of greater than or equal to 200 mg/dl may also be indicative of diabetic concerns.

ASSESSMENT

Hyperglycemia – Prediabetes – Diabetes

PLAN

1. For hyperglycemia – may refer for and advise patient with above risk-factors for diabetic evaluation and management
2. Adult patients with prediabetes should be tested yearly; Patients who were diagnosed with GDM should have lifelong testing every 3 yrs; all other patients testing should begin at age 35 and repeat every 3 yrs if normal values. Consider screening more often than 3-year intervals, individualized by client based on risk factors and initial screening results.
3. Adolescent patients should be tested every 3 years, if normal; testing can be increased in frequency if BMI increasing, or increased risk-factors present

CLIENT EDUCATION

1. Provide education regarding importance of follow-up for diagnosis and management. Advise glucose control in preconception counseling, as indicated.
2. Encourage exercise of 150min/week, dietary changes, and weight management.
3. The risk for T2DM can be lowered by 58% with a 7% weight loss and moderate exercise, such as brisk walking, 30 minutes/day, 5 days a week.
4. Recommend client RTC as indicated for health maintenance visits and repeat testing as described above

CONSULT / REFER TO PHYSICIAN

1. Any client with abnormal lab finding
2. Any client with hyperglycemia for diabetic evaluation and management

REFERENCES

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2. National Institute of Diabetes and Digestive and Kidney Diseases. (2018). *The A1c test & diabetes*. Retrieved from https://www.niddk.nih.gov/health-information/diagnostic-tests/a1c-test?dkrd=hiscr0013
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