Managing Diabetes in Primary Care in the Caribbean

2011 Pocket Edition of CHRC/PAHO

The complete ©2006 guidelines are available at: http://www.chrc-caribbean.org/Guidelines.php

Criteria for the Diagnosis of Diabetes Mellitus

1) FPG ≥126 mg/dL (≥7.0 mmol/L). Fasting is defined as no caloric intake for at least 8 h.*

OR

2) 2-h post-load glucose ≥200 mg/dL (≥11.1 mmol/L) during an OGTT. The test should be performed as described by the WHO, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.*

OR

3) In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥200 mg/dL (≥11.1 mmol/L).

*In the absence of unequivocal hyperglycemia, criteria 2 and 3 should be confirmed by repeat testing.

Note: New diagnostic criteria include HbA1c (≥5.5%), which should be performed only in a laboratory using a method that is certified by a glycohemoglobin standardization program and standardized to the Diabetes Control and Complications Trial (DCCT)/reference assay.

Source: American Diabetes Association, 2010

Categories of Increased Risk for Future Diabetes

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired Fasting Glucose (IFG)</td>
<td>Fasting plasma glucose 100-125 mg/dL (5.6-6.9 mmol/L)</td>
</tr>
<tr>
<td>Impaired Glucose Tolerance (IGT)</td>
<td>2h plasma glucose 140-199 mg/dL (7.8-11.0 mmol/L)</td>
</tr>
<tr>
<td>Elevated HbA1c*</td>
<td>HbA1c: ≥5.5%</td>
</tr>
</tbody>
</table>

*The HbA1c criterion applies to tests performed in a laboratory using a method that is certified by a glycohemoglobin standardization program and standardized to the Diabetes Control and Complications Trial (DCCT)/reference assay.

Source: Adapted from the American Diabetes Association, 2010

BMI = Weight (in kilos) / Height (in metres)²

BMI = [Weight (in lbs.) x 703] / Height (in inches)²

The WC is measured at the part of the trunk located midway between the lower costal margin (bottom of lower rib) and the iliac crest (top of pelvic bone) while the person is standing, with feet about 20-30 cm apart (10-12 in). The measurer should stand beside the individual and fit the tape snugly, without compressing any underlying soft tissues. The circumference should be measured to the nearest 0.5 cm (1/4 in), at the end of a normal expiration.

Source: International Diabetes Federation

Screening for Microalbuminuria

<table>
<thead>
<tr>
<th>Category of Abnormality in Albumin Excretion</th>
<th>Spot collection (g/kg creatinine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;30</td>
</tr>
<tr>
<td>Microalbumin</td>
<td>30-299</td>
</tr>
<tr>
<td>Clinical albumin</td>
<td>≥300</td>
</tr>
</tbody>
</table>

Note: Random spot collection is the preferred method; 24-hour and timed collections are more burdensome and add little to prediction or accuracy. Two of three specimens collected within a 3 to 6-month period must be abnormal for a patient to have crossed diagnostic thresholds.

Source: American Diabetes Association, 2010

Metabolic, Blood Pressure and Nutritional Targets

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood glucose:</td>
<td>90-130 mg/dL (5.0-7.2 mmol/L)</td>
</tr>
<tr>
<td>Postprandial Postprandial</td>
<td>&lt;180 mg/dL (&lt;10.0 mmol/L)</td>
</tr>
<tr>
<td>HbA1c*</td>
<td>≤5.5%</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>&lt;200 mg/dL (&lt;5.2 mmol/L)</td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td>≥40 mg/dL (&lt;1.0 mmol/L)</td>
</tr>
<tr>
<td>LDL cholesterol</td>
<td>&lt;70 mg/dL (&lt;1.8 mmol/L)</td>
</tr>
<tr>
<td>Fasting triglycerides</td>
<td>&lt;150 mg/dL (&lt;1.7 mmol/L)</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>≤130/80 mmHg</td>
</tr>
</tbody>
</table>

Body Mass Index and Waist Circumference

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Source: International Diabetes Federation

Treatment Algorithm for the Metabolic Management of Type 2 Diabetes

STEP 1
At Diagnosis: Lifestyle + Metformin

STEP 2
Lifestyle + Metformin + Basal Insulin [if HbA1c ≥ 5.5% or symptoms secondary to hyperglycemia]

STEP 3
Lifestyle + Metformin + Sulfonylurea

Lifestyle + Metformin + Intensive Insulin

Note:
• Less well-validated therapies including Meglitinides, acarbose, or DPP-4 inhibitors can be considered as treatment options in Step 2.
• Reinforce lifestyle interventions at every visit.
• Check HbA1c every 3 months until HbA1c is <7% and then at least every 6 months.
• The interventions should be changed if FPG is >126 mg/dL.
• Consider specialist referral if drugs and non-pharmacological interventions do not lead to satisfactory metabolic control.

Source: American Diabetes Association/European Association for the Study of Diabetes, 2009
Profile of Principal Oral Glucose-Lowering Agents

Mixing of Insulins

- If Lente or Ultralente is mixed with Regular insulin in a syringe, it should be injected immediately, or the action of the Regular insulin may become impaired.
- Glargine should not be mixed in the syringe with other insulins or with insulin pump infusion sets.
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Possible Insulin Regimens in Type 2 Diabetes Mellitus

1) Combined oral agents and insulin:
   - Morning: Oral agents e.g. Metformin or Sulphonylureas
   - Bedtime: Glargine or NPH insulin: Start with 10-15 units and adjust to achieve target fasting values.

Mixing of Insulins (continued from preceding panel)

Protocol for Testing for Gestational Diabetes Mellitus

Glucose Tolerance Tests for Gestational Diabetes

1) Screen with questions related to risk factors:
   - > 25 years of age
   - overweight
   - first degree family history of diabetes
   - previous history of abnormal glucose metabolism
   - gout
   - previous poor obstetric history
   - ethnicity associated with high prevalence of diabetes mellitus
   - a previous large baby weighing more than 4.0 kg (9 lbs)

2) High-risk patients should be tested with the Oral Glucose Tolerance Test.
   - If the first test is normal, repeat high-risk patients at 24-28 gestation.

Diagnostic Criteria

There are two main glucose tolerance tests used for diagnosing gestational diabetes.

- The test using 100 g glucose is also widely used for detection of 'at risk' infants and mothers.
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Types of Insulin Available

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