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NEW TEST: ORAL GLUCOSE TOLERANCE TEST IN PATIENTS WITH CYSTIC FIBROSIS 1

NEW TEST: ORAL GLUCOSE TOLERANCE TEST IN PATIENTS WITH CYSTIC FIBROSIS

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Effective January 13, 2014, a new test code will be introduced specifically for cystic fibrosis (CF) related oral glucose tolerance testing. Providers ordering an Oral Glucose Tolerance Test (OGTT) for patients suspected of having Cystic Fibrosis Related Diabetes (CFRD) are requested to use the new test code:
OGTTCF (Oral Glucose Tolerance Test - Cystic Fibrosis).

BACKGROUND

CFRD is the most common morbidity in patients with CF. Though it shares the features of type 1 and type 2 diabetes, CFRD is a distinct clinical entity. CFRD occurs most commonly in the setting of severe CF mutations associated with exocrine pancreatic insufficiency and is considered an insulin insufficient state. Insulin deficiency is the primary defect in CFRD but fluctuating levels of insulin resistance related to acute & chronic illness also play a role.

The majority of patients with CFRD do not have fasting hyperglycemia, thus in the absence of classic symptoms, the diagnosis of CFRD frequently relies on the oral glucose tolerance test.

Longitudinal studies demonstrate that a diabetes diagnosis by OGTT correlates with clinically important CF outcomes including the rate of lung function decline over the subsequent four years, risk of microvascular complications, and risk of early death.

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As of 2010, annual screening for CFRD starting at the age of 10 years has been recommended by the US Cystic Fibrosis Foundation (CFF), the International Society of Pediatric and Adolescent Diabetes (ISPAD), and the American Diabetes Association (ADA) using the 2 hour 75 g OGTT (ADA consensus). The OGTT should also be performed prior to transplant and pregnancy.

RECOMMENDATIONS

During a period of stable baseline health, the diagnosis of CFRD can be made in CF patients according to standard ADA criteria. Positive fasting plasma glucose (FPG) and HbA1C can be used as confirmatory tests, but if FPG is normal the OGTT should be performed.

A diagnosis of diabetes may be based on the following:

- 2-hr OGTT plasma glucose ≥200 mg/dL
- FPG ≥126 mg/dL
- A1C >6.5% (A1C <6.5% does not rule out CFRD.)
- Classic symptoms of diabetes (polyuria and polydipsia) in the presence of a casual glucose level >200 mg/dL

If a diagnosis of diabetes is not confirmed, the patient resumes routine annual testing.

TEST INFORMATION

Test Name: Glucose Tolerance Test - Cystic Fibrosis

Test Code: OGTTCF

Specimen Requirements: Preferred specimen: Lithium-heparin plasma or Fluoride/oxalate (Gray Top) plasma. For more details refer to Marshfield Labs' Test Reference Manual as of 1/13/14.

Fasting: Minimum 8 hours not exceeding 12 hours before the test. *Water is permitted during this fasting period*.

Collection Instructions: The test should be performed in the morning during a period of stable baseline health (at least six weeks since an acute exacerbation). The patient should consume a minimum of 150 g of carbohydrate daily for the preceding 3 days. Patients should also be advised to discontinue, whenever possible, all nonessential medication that can affect glucose metabolism at least three days before testing.

Glucola (oral glucose load, containing 1.75 g/kg glucose; maximum dose 75 g) will be administered to the patient by a phlebotomist and must be consumed within a 5 minute interval; sipping of water is permitted. After consuming the glucose load, the patient will be directed not to smoke, chew gum, eat or consume caffeine-containing beverages, and have minimal activity during the testing phase. The patient will be permitted to drink small sips of water.

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The patient will be advised by the phlebotomist that if any adverse symptoms develop (i.e., nausea, headache, dizziness or vomiting) the patient should report immediately back to the laboratory. At that point, it will be determined if testing will continue or if medical attention is needed.

A fasting blood specimen is drawn before administering the glucose load dose. Blood is drawn at 1 and 2 hours after the oral glucose load is administered.

Performing Lab: Marshfield Center.

REFERENCE VALUES

Normal Glucose Tolerance:
Fasting Plasma Glucose: <126 mg/dL
1-Hour Post-dose Plasma Glucose: <200 mg/dL
2-Hour Post-dose Plasma Glucose: <140 mg/dL

Impaired Glucose Tolerance (IGT):
Fasting Plasma Glucose: <126 mg/dL
2-Hour Post-dose Plasma Glucose: ≥140 mg/dL and <200 mg/dL

Cystic Fibrosis Related Diabetes (CFRD):
Fasting Plasma Glucose: ≥126 mg/dL
2-Hour Post-dose Plasma Glucose: ≥200 mg/dL

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