KAISER PERMANENTE.
COLORADO LABORATORY

GLUCOSE TOLERANCE TESTING

PRINCIPLE

Glucose tolerance testing is used to detect diabetes, impaired glucose tolerance, gestational diabetes and hypoglycemia. The dosage and phlebotomy drawing schedule will be different for each of our three orderable tolerance tests:

One Hour Glucose Tolerance Test (OB Screening Test)
Two Hour Glucose Tolerance Test
Three Hour Glucose Tolerance Test (OB Patients ONLY)

SCHEDULING

- One hour glucose tolerance test patients do not need to pre-schedule a test
- Two and three hour glucose tolerance test patients do need to pre-schedule the test
  These patients will contact the laboratory where they would like to have the tolerance test
  Performed to schedule a date and time that the laboratory can accommodate.
- Monday through Friday – it is recommended that no more than 3 patients be scheduled
- Saturday – for those patients unable to test Monday through Friday, it is recommended that no more than one patient is scheduled
- If a walk-in patient arrives, we will accommodate their testing at that time.

PATIENT PREPARATION

****Patients must remain in the clinic for the duration of the test****

Members must remain within the clinic during the test. This is in case the member should have a reaction to the Glucola and need assistance.

Administering a commercial glucose beverage is our standard for oral glucose load for glucose tolerance testing. Patients exhibiting intolerance to the glucose beverage will be documented and the glucose testing will be discontinued. A formal dietary meal for the 2-hour glucose tolerance test or the 1-hour OB Screen is not clinically indicated. The 100 gram carbohydrate meal is only given to the pregnant patient after glucola intolerance has been established and the provider has been consulted.

Fasting is not necessary for the 1 hour OB glucose tolerance test. All patients must be fasting (at least 8 hours) before the 2-hour and 3-hour glucose tolerance test. Patients may have water while fasting and during the test.

GLUCOSE TOLERANCE BEVERAGES

- Lemon lime Glucose tolerance beverage which contains 100 grams of glucose in 10 fluid ounces (10 grams per ounce)
- Orange Glucose tolerance beverage which contains 50 grams of glucose in 10 fluid ounces (5 grams per ounce) ** Used for the 1-hour GTT (OB screen)

DOSAGE AND DRAWING INSTRUCTIONS

- The entire dosage must be consumed within 5 minutes.
- If the patient vomits, discontinue testing. For specimens that have been collected, send to RRL as normal. For those portions of the tolerance that cannot be collected enter a result into ARE as a comment "Patient unable to tolerate glucola beverage" in ARE. Follow the Cerner Millennium instructions for logging in a specimen and entering a result.
- OB patients returning after glucola intolerance must have provider consultation for the carbohydrate meal to replace the 100 gram beverage. The approved carbohydrate meal (3 choices) is found following this procedure.
- Document in Cerner a test comment "Provider approved meal for glucola intolerance."
- All specimens collected will be tested in the Chemistry department at Regional Reference Laboratory.

ANALYTICAL PROCEDURE - Analyze and report glucose values using the current glucose procedure in the Chemistry Department at Regional Reference Laboratory.

Test	Patient	Dosage	Specimen
2 HR GTT	Adult > 95 lbs.	75 gm	Fasting and 2 HR
1 HR GTT	Pregnant (OB Screen: fasting not required)	50 gm	1 HR
3 HR GTT	Pregnant (OB: Fasting required)	100 gm	Fasting,1 HR, 2HR, 3 HR
Give less glucose to children and adults under 95 lbs. If a child is over 95 lbs, give the regular dose. Use the following formula: Give: 1.75 gm glucose per 1 kw wt (2.2 lbs), one ounce glucola contains 10 gms glucose. Formula: Ounces of glucola = pt wt (lbs) X 0.08			

INTERPRETATION

Patient	Fasting	1 HR	2 HR	3 HR	
Normal non-pregnant	<110 mg/dl		<140 mg/dl		
Impaired tolerance	110-125 mg/dl				
Diabetes Mellitus	>126 mg/dl		>200 mg/dl		
Normal pregnant		<140 mg/dl	*When the 1-hour OB screen is >140 mg/dl the provider will order a 3-hour GTT		
Gestational Diabetes *	>105 mg/dl	>190 mg/dl	>165 mg/dl	>145 mg/dl	
*Two or more of the criteria for gestational diabetes must be met					

REFERENCES

National Diabetes Data Group, Diabetes 28:1039, 1979, O'Sullivan, J.B. NEJM 278:1038, 1968

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DeGroot, Leslie J. et al; Endocrinology; Sec. Ed.; Vol. 1; W.B. Saunders Company 1989.

Jacobs & DeMott, Laboratory Test Handbook, 5th Edition, 2001, p. 185.

Consultation: Dr. Larry Ballanoff (1/90 & 9/01); Dr. Carol Braun (1/90); Dr. Sally Berga (9/01).

For OB Patients Only

Three Hour Glucose Tolerance

Replacement Diet for Glucola Intolerance

100 grams of carbohydrate breakfast

- Come to the laboratory, after not eating or drinking anything but water for 8 hours, for a fasting blood draw.
- Then eat **one** of the breakfast menus listed below.
- Return to the lab **1 hour** after completion of the breakfast for the 1 hour blood drawn and remain in the clinic for the 2nd and 3rd hour blood draws.

	Carbohydrate grams
1. 1 ½ cups of cornflakes	39
½ cup low-fat milk	6
½ banana	15
1 tsp. sugar	5
2 slices of toast	30
2 tsp. margarine	0
1 tsp. jam	14
	109 **Total**
2. McDonalds Hotcake with Butter and Syrup	94
1 orange juice	18.5
1 carton (1/2 pint) low-fat milk	12
	124.5 **Total**
3. 3 egg waffles	34
2 tsp. margarine	0
3 tsp. syrup	39
8 oz. orange juice	27
1 cup low-fat milk	12
	112 **Total**