Test Definition: HYPOG

Hypoglycemic Agent Scrn, S

Overview

Useful For

Evaluation of suspected insulinoma characterized by hypoglycemia and increased plasma insulin concentration.

Detecting drugs that stimulate insulin secretion

If hypoglycemia is the result of 1 of these drugs, the test will detect the drug at physiologically significant concentrations in serum during an episode of hypoglycemia.

Drugs detected by this procedure are:

-The first-generation sulfonylureas-acetohexamide, chlorpropamide, tolazamide, and tolbutamide

-The second-generation sulfonylureas--glimepiride, glipizide, and glyburide

-The meglitinide-repaglinide

Drugs designed to make tissues more sensitive to insulin that do not induce hypoglycemia, such as pioglitazone, rosiglitazone, and troglitazone (recently withdrawn from the United States market) are not included in this screen test.

Drugs that lower blood glucose through mechanisms not related to stimulation of insulin secretion, such as acarbose, metformin, and miglitol are not included in this screen test.

Method Name

LiquidChromatography-TandemMassSpectrometry(LC-MS/MS)

NY State Available

Yes

Specimen

Specimen Type

Serum Red

Specimen Required

Collection Container/Tube: Red top

Submission Container/Tube: Plastic vial

Specimen Volume:3 mL

Forms

If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

Specimen Minimum Volume

1.1 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum Red	Frozen (preferred)	14 days	
	Ambient	14 days	
	Refrigerated	14 days	

Clinical and Interpretive

Clinical Information

The metabolic and hormonal profiles of insulinoma and sulfonylurea-induced hypoglycemia are identical. Therefore, in the evaluation of the hypoglycemic patient, the possible use of oral hypoglycemic agents as the cause for low blood glucose and elevated plasma insulin must be considered. Absence of hypoglycemic drugs in blood serum during an episode of low blood glucose should be demonstrated before considering pancreatic exploration for suspected insulinoma.

Reference Values

ACETOHEXAMIDE

Negative: <1,000 ng/mL

CHLORPROPAMIDE

Negative: <1,000 ng/mL

TOLAZAMIDE

Negative: <20 ng/mL

TOLBUTAMIDE

Negative: <50 ng/mL

GLIMEPIRIDE

Negative: <20 ng/mL

GLIPIZIDE

Negative: <3 ng/mL

GLYBURIDE

Negative: <3 ng/mL

REPAGLINIDE

Negative: <3 ng/mL

Note: The report indicates a specific drug is **positive** if that drug is detected at a concentration greater than the sensitivity limit. The test sensitivity limit listed for each drug is lower than the concentration that will cause increased insulin and decreased glucose.

Interpretation

Use of hypoglycemic agents outside of the context of treatment of type 2 diabetes is likely to cause hypoglycemia associated with elevated plasma insulin. Patients presenting with hypoglycemia due to ingestion of a first-, second-, or third-generation hypoglycemic agent will have drug present in serum greater than the minimum effective concentration (see Reference Values). Presence of drug indicates that the patient has recently ingested a hypoglycemic agent.

Cautions

Proper interpretation requires that the blood specimen be drawn during or close to the time of a hypoglycemic episode. Drugs will not be detected (and are not likely to be present) if blood is drawn when blood glucose is normal in nondiabetic patients.

All drugs that stimulate insulin secretion undergo extensive metabolism before excretion. The parent drug is therefore not present in urine. Blood serum is the specimen of choice for detecting use of the hypoglycemic drugs: urine or plasma is not an acceptable specimen.

This test is not intended for therapeutic drug monitoring.

Clinical Reference

Ben-Ami H, Nagachandran P, Mendelson A, Edoute Y: Drug-induced hypoglycemic coma in 102 diabetic patients. Arch Int Med 1999;159:281-284

Performance

Method Description

Serum specimens are subjected to organic extraction. The extract is analyzed by liquid chromatography-tandem mass spectrometry.(Unpublished Mayo information)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday, Wednesday, Friday (9 a.m. cutoff)

Analytic Time

2 days

Maximum Laboratory Time

8 days

Performing Laboratory Location

Rochester

Fees and Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information

80307

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
HYPOG	Hypoglycemic Agent Scrn, S	In Process

Result ID	Test Result Name	Result LOINC Value
21294	Acetohexamide	43626-1
21295	Chlorpropamide	48329-7
21296	Tolazamide	21566-5
21297	Tolbutamide	21567-3
21298	Glimepiride	48325-5
21299	Glipizide	48326-3
21300	Glyburide	48327-1
21301	Repaglinide	48328-9
21308	Comment	48767-8