MAYO CLINIC LABORATORIES

Test Definition: HEXP

Iohexol, Plasma

Overview

Useful For
Determining glomerular filtration rate in plasma specimens

Method Name
Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)

NY State Available
Yes

Specimen

Specimen Type
Plasma Heparin

Specimen Required
Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube: Green top (heparin)
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions: Centrifuge and aliquot plasma into a plastic vial.

Forms
If not ordering electronically, complete, print, and send a Renal Diagnostics Test Request (T830) with the specimen.

Specimen Minimum Volume
0.5 mL

Reject Due To
All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Plasma Heparin	Refrigerated (preferred)	7 days	
	Ambient	7 days	
	Frozen	35 days	

Clinical & Interpretive

Clinical Information

The assessment of glomerular filtration rate (GFR) is an important parameter of kidney function utilized by clinicians in the care of patients with varying kidney diseases, and for clinical research when precise assessment of kidney function is necessary. The GFR is the sum of all the filtration rates of the individual nephrons within the kidney and, as such, reflects the number of functioning nephrons.

Plasma concentrations of iohexol can be used for measurement of GFR through multiple plasma iohexol determinations following an intravenous bolus injection of iohexol (plasma disappearance) or following a continuous infusion (or subcutaneous injection) of iohexol when used in conjunction with urine iohexol determinations (urinary clearance; HEXU / Iohexol, Timed Collection, Urine).

Reference Values

Not applicable

Interpretation

Low glomerular filtration rate (GFR) values indicate abnormal kidney function, which may be either reversible/transient or irreversible/permanent. GFR tends to decline with age.

Cautions

A theoretical complication to injection of iodinated contrast media (one that has not been observed clinically to date) is the transient suppression of thyroid function in premature and newborn infants. Therefore, a sensitive thyrotropin test is suggested approximately 2 to 3 weeks after an iohexol clearance in that age group.

Clinical Reference

1. Brown SC, O'Reilly PH. Iohexol clearance for the determination of glomerular filtration rate in clinical practice: evidence for a new gold standard. J Urol. 1991;146:675-679
2. Gaspari F, Perico N, Ruggenenti P, et al. Plasma clearance of nonradioactive iohexol as a measure of glomerular filtration rate. J Am Soc Nephrol. 1995;6:257-263
3. Schwartz GJ, Abraham AG, Furth SL, et al. Optimizing iohexol plasma disappearance curves to measure the glomerular filtration rate in children with chronic kidney disease. Kidney Int. 2010;77:65-71
4. Schmit DJ, Carroll LJ, Eckfeldt JH, Seegmiller JC. Verification of separate measurement procedures where analytical determinations influence the clinical interpretation of GFR: Iohexol quantitation by HPLC and LC-MS/MS. Clin Biochem. 2019;67:16-23
5. Seegmiller JC, Burns BE, Schinstock CA, Lieske JC, Larson TS. Discordance between iothalamate and iohexol urinary clearances. Am J Kid Dis. 2016;67(1):49-55

Performance

Method Description

Blood specimens are obtained after subcutaneous injection of non-radiolabeled iohexol. Iohexol results are acquired via a liquid chromatography tandem mass spectrometry (LC-MS/MS) system. A ThermoFisher LX-2 Cohesive high-performance liquid chromatography system and an ABSciex 5500 MS/MS are used for analysis.(Seegmiller JC, Burns BE, Lieske JC, et al. Discordant glomerular filtration rate determinations between iothalamate and iohexol renal clearances. Poster presented at: Renal Week 2010. 43rd Annual Meeting of the American Society of Nephrology;

November 16-21, 2010; Denver, CO)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
3 to 4 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & 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 account representative. 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. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
82542

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HEXP	Iohexol, P	93974-4

Result ID	Test Result Name	Result LOINC® Value
61713	Iohexol, P	93974-4