Test Definition: DIA

Diazepam and Nordiazepam, S

Overview

Useful For

Assessing compliance

Monitoring for appropriate therapeutic level

Assessing toxicity

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Serum Red

Specimen Required

Container/Tube: Red top

Specimen Volume: 0.5 mL

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:

-Neurology Specialty Testing Client Test Request (T732)

-Therapeutics Test Request (T831)

Specimen Minimum Volume

0.3 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

Specimen Stability Information

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

Clinical and Interpretive

Clinical Information

Diazepam, a benzodiazepine derivative, is an anxiolytic agent that reduces neuronal depolarization resulting in decreased action potentials. It enhances the action of gamma-amino butyric acid (GABA) by tightly binding to A-type GABA receptors, thus opening the membrane channels and allowing the entry of chloride ions. It is also used as a muscle relaxant, procedural sedation agent, and sedative-hypnotic agent to treat withdrawal states (ie, ethanol), along with other conditions (seizures).

Diazepam is metabolized to several metabolites in the liver including temazepam, oxazepam, and nordiazepam (desmethyldiazepam) and the clearance of the drug is reduced considerably in the elderly and in patients with hepatic disease.

Therapeutic assessment typically includes measurement of both the parent drug (diazepam) and the active metabolite (nordiazepam).

Reference Values

Therapeutic concentrations

Diazepam and Nordiazepam: 200-2,500 ng/mL

Interpretation

For seizures:

Serum concentrations are not usually monitored during early therapy because response to the drug can be monitored clinically as seizure control. If seizures resume despite adequate therapy, another anticonvulsant must be considered.

Toxicity is commonly seen when diazepam plus nordiazepam concentrations exceed 3,000 ng/mL. Adverse effects of benzodiazepines in therapeutic doses usually reflect the drug's pharmacology and include sedation, slurred speech, and ataxia. Respiratory depression/arrest may occur with large overdoses or following rapid IV injection with short-acting benzodiazepines.

Cautions

No significant cautionary statements

Clinical Reference

1. Langman LJ, Bechtel L, Holstege CP: Chapter 35: Clinical Toxicology, In Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Edited by CA Burtis, ER Ashwood, DE Bruns. WB Saunders Company, Philadelphia, PA, 2011, pp 1109-1188

2. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Edited by CA Burtis, ER Ashwood, DE Bruns, WB Saunders Company, Philadelphia, PA, 2011, Table 60.2, pp 1109-1188

Performance

Method Description

The internal standard mixture containing chlordiazepoxide-d5, diazepam-d4, and nordiazepam-d5 is added to serum samples The serum samples are treated with 0.1M phosphate buffer and extracted via liquid/liquid extraction with 50/50 (hexane/ethyl acetate). The organic layer from the extraction is dried under nitrogen, reconstituted in 95/5 (H2O/Methanol) and injected on a liquid chromatography-tandem mass spectrometer (LC-MS/MS).(Unpublished Mayo method)

PDF Report

No

Day(s) and Time(s) Test Performed

Friday, Varies

Analytic Time

Same day/1 day

Maximum Laboratory Time

7 days

Specimen Retention Time

14 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

80346

G0480 (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
DIA	Diazepam and Nordiazepam, S	49044-1

Result ID	Test Result Name	Result LOINC Value
8629	Diazepam	3548-5
2475	Nordiazepam	3537-8

Test Definition: DIA

Diazepam and Nordiazepam, S

Result ID	Test Result Name	Result LOINC Value
2459	Diazepam and Nordiazepam	16757-7