Test Definition: DXPIN

Doxepin and Nordoxepin, S

Overview

Useful For

Monitoring therapy

Evaluating potential toxicity

Evaluating patient compliance

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:1 mL

Collection Instructions:

1. Draw specimenimmediately before next scheduled dose (or ata minimum 12 hours after last dose).

2. Serum must be separated from cells within 2 hours of draw.

Forms

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

Specimen Minimum Volume

0.25 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum Red	Refrigerated (preferred)	28 days	

Specimen Type	Temperature	Time	Special Container
	Frozen	28 days	
	Ambient	7 days	

Clinical and Interpretive

Clinical Information

Doxepin is recommended for the treatment of psychoneurotic patients with depression or anxiety, and depression or anxiety associated with alcoholism or organic disease.

Nordoxepin (*N*-desmethyldoxepin) is the major metabolite and is usually present at concentrations equal to doxepin. Optimal efficacy occurs at combined serum concentrations between 50 and 150 ng/mL.

Like other tricyclic antidepressants, the major toxicity of doxepin is expressed as cardiac dysrhythmias, which occur at concentrations in excess of 500 ng/mL. Other side effects include nausea, hypotension, and dry mouth.

Reference Values

Therapeutic concentration (doxepin + nordoxepin): 50-150 ng/mL

Note: Therapeutic ranges are for specimens drawn at trough (ie, immediately before next scheduled dose). Levels may be elevated in non-trough specimens.

Interpretation

Most individuals display optimal response to doxepin when combined serum levels of doxepin and nordoxepin are between 50 and 150 ng/mL. Some individuals may respond well outside of this range, or may display toxicity within the therapeutic range; thus, interpretation should include clinical evaluation. Risk of toxicity is increased with combined levels are above 500 ng/mL.

Therapeutic ranges are based on specimens drawn at trough (ie, immediately before the next dose).

Cautions

This test cannot be performed on whole blood. Serum must be separated from cells within 2 hours of drawing; if serum is not removed within this time, tricyclic antidepressant levels may be falsely elevated due to drug release from RBCs. Specimens that are obtained from gel tubes are also not acceptable, as the drug can absorb on the gel and lead to falsely decreased concentrations.

Clinical Reference

1. Wille SM, Cooreman SG, Neels HM, Lambert WE: Relevant issues in the monitoring and the toxicology of antidepressants. Crit Rev Clin Lab Sci 2008;45(1):25-89

2. Thanacoody HK, Thomas SH: Antidepressant poisoning. Clin Med 2003;3(2):114-118

3. Hiemke C, Baumann P, Bergemann N, et al: AGNP Consensus Guidelines for Therapeutic Drug Monitoring in Psychiatry: Update 2011. Pharmacopsychiatry 2011;44(6):195-235

4. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Edited by CA Burtis, ER Ashwood, DE Bruns. 2012. Fifth edition. Elsevier

Performance

Method Description

The tricyclic antidepressants are extracted from serum using a solvent crash to precipitate proteins. The supernatant is remove and analysis is by liquid chromatography-tandem mass spectrometry (LC-MS/MS).(Unpublished Mayo method)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday; Varies

Analytic Time

2 days

Maximum Laboratory Time

4 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

80335

G0480 (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
DXPIN	Doxepin and Nordoxepin, S	43122-1

Result ID	Test Result Name	Result LOINC Value
63507	Doxepin	3579-0
37125	Nordoxepin	3862-0
37126	Doxepin and Nordoxepin	3582-4