Test Definition: MEX

Mexiletine, S

Overview

Useful For

Assessing achievement of optimal therapeutic concentrations

Assessing potential toxicity

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Serum Red

Specimen Required

Patient Preparation: Samples should only be collected after patient has been receiving mexiletine for at least 3 days. Trough concentrations should be collected just before administration of the next dose.

Collection Container/Tube: Red top

Submission Container/Tube: Plastic vial

Specimen Volume:1.5 mL

Collection Instructions:

1. Samples should only be collected after patient has been receiving mexiletine for at least 3 days.

2. Draw blood immediately before next scheduled dose.

3. Centrifuge within 2 hours of draw and aliquot to remove serum from spun RBCs.

Forms

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

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	Reject
Gross icterus	OK

Specimen Stability Information

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

Clinical and Interpretive

Clinical Information

Mexiletine is a class I B antiarrhythmic with electrophysiologic properties similar to lidocaine and is useful in suppression of ventricular arrhythmias.

The drug exhibits a high degree of oral bioavailability, is approximately 60% protein bound, and undergoes renal clearance at a rate of 10.3 mL/min/kg. Mexiletine has a volume of distribution of 9.5 L/kg at a half-life of 11 hours. Myocardial infarction and uremia reduce the rate of clearance and increase the half-life of mexiletine, requiring dosage adjustment guided by drug monitoring.

Mexiletine toxicity occurs at concentrations above 2.0 mcg/mL (trough value) and is characterized by symptoms of nausea, hypotension, sinus bradycardia, paresthesia, seizures, intermittent left bundle branch block, and temporary asystole.

Reference Values

Trough Value

0.5-2.0 mcg/mL: Therapeutic concentration

>2.0 mcg/mL: Toxic concentration

Interpretation

Optimal response to mexiletine occurs when the serum concentration is within the range of 0.8 to 2.0 mcg/mL (trough value).

Cautions

Specimens that are obtained from gel tubes or anticoagulate collections can cause assay interference.

Clinical Reference

1. Nader R, Horwath AR, Wittwer CT: In Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Sixth edition. St. Louis: Elsevier 2018

2. Burtis CA, Ashwood ER, Bruns DE, et al: In Tietz Textbook of Clinical Chemistry and Molecular Diagnosis. Fifth edition. St Louis: Elsevier. USA 2012

3. Josephson ME, Buxton AE, Marchlinski FE: The tachyarrhythmias: tachycardias. In Harrison's Principles of Internal Medicine. 12th edition. Edited by JD Wilson, E Braunwald, KJ Isselbacher, et al: New York, McGraw-Hill Book Company, 1991, p 915

4. Valdes R Jr, Jortani SA, Gheorghiade M, et al: Standards of Laboratory Practice: Cardiac Drug Monitoring. Clin Chem 1998;44(5):1096-1099

5. Joseph SP, Holt DW: Electrophysiological properties of mexiletine assessed with respect to plasma concentrations. Eur J Cardiol 1980 Feb;11(2):115-121

Performance

Method Description

Protein is precipitated from serum and following centrifugation the supernatant is diluted and analyzed by LC-MS/MS.(Unpublished Mayo Method)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Saturday

Analytic Time

2 days

Maximum Laboratory Time

5 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

80299

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
MEX	Mexiletine, S	40779-1

Test Definition: MEX

Mexiletine, S

Result ID	Test Result Name	Result LOINC Value
9245	Mexiletine, S	40779-1