Overview

Useful For
Monitoring amiodarone therapy, especially when amiodarone is coadministered with other drugs that may interact
Evaluation of possible amiodarone toxicity
Assessment of patient compliance

Method Name
Liquid Chromatography-Mass Spectrometry (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: 1.5 mL

Collection Instructions:
1. Draw blood no sooner than 12 hours (trough value) after last dose or immediately before next scheduled dose.
2. 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

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<th>OK</th>
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<tbody>
<tr>
<td>Gross lipemia</td>
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</tr>
<tr>
<td>Gross icterus</td>
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Specimen Stability Information
**Clinical and Interpretive**

**Clinical Information**
Amiodarone is an antiarrhythmic agent used to treat life-threatening arrhythmias; it is typically categorized as a Class III drug (antiarrhythmic agents that are potassium channel blockers) but shows several mechanisms of action. The US Food and Drug Administration approved the use of amiodarone for recurrent ventricular fibrillation and recurrent hemodynamically unstable ventricular tachycardia only after demonstrating lack of response to other antiarrhythmics, but more recent studies have shown amiodarone to be the antiarrhythmic agent of choice for many situations, including atrial fibrillation.(1)

Amiodarone can be administered orally or intravenously for cardiac rhythm control. It is 95% protein bound in blood, with a volume of distribution of 60 L/kg. Amiodarone elimination is quite prolonged, with a mean half-life of 53 days. CYP3A4 converts amiodarone to its equally active metabolite, N-desethylamiodarone (DEA), which displays very similar pharmacokinetics and serum concentrations compared with the parent drug.(2) Current therapeutic ranges are based solely on amiodarone, but most individuals will have roughly equivalent concentrations of DEA at steady state.(3)

Numerous side effects have been associated with amiodarone. The most common adverse effect is disruption of thyroid function (hypo- or hyperthyroidism) due to amiodarone's structural similarity to thyroid hormones. Neurological and gastrointestinal toxicities are concentration-dependent, whereas thyroid dysfunction, pulmonary fibrosis, and hepatotoxicity are more loosely linked to drug concentration. There is significant potential for drug interactions involving amiodarone, including several other cardioactive drugs (eg, digoxin, verapamil, class I antiarrhythmics [sodium channel blockers]), warfarin, statins, and CYP3A4 substrates.

**Reference Values**

**AMIODARONE**

Trough Value

0.5-2.0 mcg/mL: Therapeutic concentration

>2.5 mcg/mL: Toxic concentration

**DESETHYLAMIODARONE:**

No therapeutic range established for desethylamiodarone; activity and serum concentration are similar to parent drug.

**Interpretation**

Clinical effects generally require serum concentrations above 0.5 mcg/mL.

Increased risk of toxicity is associated with amiodarone concentrations above 2.5 mcg/mL.
Although therapeutic and toxic ranges are based only on the parent drug, the active metabolite N-desethylamiodarone should be present in similar concentrations to amiodarone.

**Cautions**

Numerous drug interactions have been observed for amiodarone. Clinical follow-up is essential for optimal use of amiodarone. Therapeutic drug monitoring for amiodarone and coadministered medications is highly recommended.

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

**Clinical Reference**


**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**

2 weeks

**Performing Laboratory Location**

Rochester

**Fees and Codes**

**Fees**

- Authorized users can sign in to Test Prices for detailed fee information.
Test Definition: AMIO
Amiodarone, S

- 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

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