Overview

Useful For
Verifying carbon monoxide toxicity in cases of suspected exposure

Method Name
Carboxyhemoglobin Co-oximetry

NY State Available
Yes

Specimen

Specimen Type
Whole Blood EDTA

Advisory Information
This test is not available for autopsy or cadaver specimens.

Specimen Required
Container/Tube: Lavender top (EDTA)

Specimen Volume: 1 mL

Collection Instructions: Avoid exposure of specimen to atmosphere.

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

Specimen Minimum Volume
0.1 mL

Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>OK</td>
</tr>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</td>
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</table>

Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
</tr>
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<tbody>
<tr>
<td>Whole Blood EDTA</td>
<td>Ambient (preferred)</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refrigerated</td>
<td>14 days</td>
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Clinical and Interpretive

Clinical Information
Carbon monoxide (CO) poisoning causes anoxia, because CO binds to hemoglobin with an affinity 240 times greater than that of oxygen, thus preventing delivery of oxygen to the tissues. Twenty percent saturation of hemoglobin induces symptoms (headache, fatigue, dizziness, confusion, nausea, vomiting, increased pulse, and respiratory rate). Sixty percent saturation is usually fatal. This concentration is reached when there is 1 part CO per 1,000 parts air.

Carboxyhemoglobin diminishes at a rate of about 15% per hour when the patient is removed from the contaminated environment.

The most common cause of CO toxicity is exposure to automobile exhaust fumes. Significant levels of carboxyhemoglobin can also be observed in heavy smokers. Victims of fires often show elevated levels from inhaling CO generated during combustion. Susceptibility to CO poisoning is increased in anemic persons.

Reference Values
Normal Concentration
Non-Smokers: 0-2%
Smokers: < or =9%
Toxic concentration: > or =20%

Interpretation
The toxic effects of carbon monoxide can be seen above 20% carboxyhemoglobin. It must be emphasized that the carboxyhemoglobin concentration, although helpful in diagnosis, does not always correlate with the clinical findings or prognosis. Factors other than carboxyhemoglobin concentration that contribute to toxicity include length of exposure, metabolic activity, and underlying disease, especially cardiac or cerebrovascular disease. Moreover, low carboxyhemoglobin concentrations relative to the severity of poisoning may be observed if the patient was removed from the carbon monoxide-contaminated environment a significant amount of time before blood sampling.

Cautions
No significant cautionary statements

Clinical Reference


Performance
Method Description
The ABL80 OSM CO-OX analyzer is a portable, automated analyzer that measures oximetry in whole blood. Total hemoglobin (tHb), oxygen saturation (sO2), carboxyhemoglobin (COHb), and methemoglobin (MetHb) are measured by spectrophotometry. Light passes through a cuvette containing hemolyzed blood sample. The specific wavelengths absorbed and their intensity generates an absorption spectrum used to calculate oximetry parameters. (Instruction manual: ABL80 FLEX CO-OX analyzer-OSM version, Radiometer Medical ApS, Denmark, 2016)

**PDF Report**

No

**Day(s) and Time(s) Test Performed**

Monday through Friday; 12 a.m.

**Analytic Time**

Same day/1 day

**Maximum Laboratory Time**

2 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 has been cleared or approved by the U.S. Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

**CPT Code Information**

82375

**LOINC® Information**

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<th>Test Order Name</th>
<th>Order LOINC Value</th>
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<tbody>
<tr>
<td>COHBB</td>
<td>Carbon Monoxide, B</td>
<td>20563-3</td>
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<table>
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