Overview

Useful For
Aids to evaluate patients suspected of having irritable bowel syndrome-diarrhea (IBS-D) symptoms due to bile acid malabsorption

Testing Algorithm
See Ordering Guide: Bile Acid-Associated Tests in Special Instructions.

Special Instructions
- Ordering Guide: Bile Acid-Associated Tests

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

NY State Available
Yes

Specimen

Specimen Type
Fecal

Advisory Information
This test is for evaluation of bowel dysfunction.

For evaluation of hepatobiliary dysfunction, order BILEA / Bile Acids, Total, Serum.

For evaluation of patients treated with urso or cholate, order BAFS / Bile Acids, Fractionated and Total, Serum.

For evaluation of inborn errors of metabolism, order BAIPD / Bile Acids for Peroxisomal Disorders, Serum.

Specimen Required

Patient Preparation:

For 3 days prior to and during the collection period:

1. Patient should be on a fat-controlled diet (100-150 g fat per day)
2. No laxatives (particularly mineral oil and castor oil)
3. No synthetic fat substitutes (eg, Olestra) or fat-blocking nutritional supplements

Supplies: Stool Containers - 24, 48, 72 Hours Kit (T291)

Collection Container/Tube: Stool container (T291); complies with shipping requirements, do not use other containers

Specimen Volume: Entire 48-hour collection
Collection Instructions:

1. Do not use other containers.

2. All containers must be sent together.

3. The entire collection must contain at least 5 g of feces.

4. The number of containers sent should be indicated on the labels (1 of 4, for example).

Additional Information:

1. Patient may store sample at refrigerate temperature during collection period.

2. Barium interferes with test procedure; a waiting period of 48 hours before stool collection analysis is recommended.

Forms

If not ordering electronically, complete, print, and send a Gastroenterology and Hepatology Client Test Request (T728) with the specimen.

Specimen Minimum Volume

5 g

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
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<tbody>
<tr>
<td>Fecal</td>
<td>Frozen</td>
<td>30 days</td>
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Clinical and Interpretive

Clinical Information

Bile acids are natural products of cholesterol synthesis that aid in the emulsification and absorption of dietary fats in the small intestine. The majority of bile acids are reabsorbed in the ileum of the healthy individual, with only 5% excreted in feces.(1) Primary bile acids cholic acid (CA) and chenodeoxycholic acid (CDCA) are deconjugated and dehydroxylated via intestinal bacteria into secondary bile acids deoxycholic acid (DCA) and lithocholic acid (LCA), respectively.(2) The sum of CA, CDCA, DCA, LCA, and ursodeoxycholic acid (UDCA) compose the majority of bile acids in the feces. Impaired absorption of bile acids in the terminal ileum leads to excess bile acids in the colon that can cause diarrhea from chloride and water secretion; a condition called bile acid malabsorption (BAM).

Irritable bowel syndrome (IBS) is a nonspecific multifactorial disorder involving the large intestine. IBS is characterized by cramping, bloating, diarrhea, and constipation and classified as either IBS-D (diarrhea) or IBS-C (constipation) by the Rome III criteria.(3) Up to 50% of IBS-D patients have accelerated colonic transit time; the mechanism of IBS-D pathophysiology is varied with more than 25% having BAM.(1,4)
Several methods have been developed for detection of BAM, but are not widely available in clinical practice.(5) Therefore, patients are often placed on trials of bile acids sequestrants to determine if symptoms improve.

Quantitation of fecal bile acids aids in screening for IBS-D and identification of patients with chronic diarrhea who may benefit from bile acid sequestrant therapy.

Reference Values
Sum of cholic acid and chenodeoxycholic acid \( \leq 3.7\% \)

Total bile acids \( \leq 2,619 \) mcmoles/48 hours

Interpretation
Elevated total fecal bile acid is consistent with the diagnosis of bile acid malabsorption. Pharmacological treatment with bile acid sequestrants has been shown to improve symptoms in some patients.

Cautions
Bile acids are not stable in stool. Stool samples must be kept frozen, immediately after collection.

Supportive Data
A clinical validation was conducted consisting of 94 normal, 60 irritable bowel syndrome-diarrhea (IBS-D), and 28 IBS-C (constipation) patients. The sum of cholic acid (CA) and chenodeoxycholic acid (CDCA) concentrations above 3.7% of the total bile acids were indicative of IBS-D with 72% sensitivity and 90% specificity.

Clinical Reference


Performance
Method Description
Fractionated fecal bile acids (BA48F) are quantified in a 48-hour fecal collection during which a high-fat intake diet was followed. Samples are analyzed on an tandem mass spectrometer.(Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Wednesday; 11 a.m.
Analytic Time
2 days

Maximum Laboratory Time
9 days

Specimen Retention Time
7 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
82542

LOINC® Information

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<td>Bile Acids, Bowel Dysfunc, 48 Hr, F</td>
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<tr>
<td>36969</td>
<td>Total Bile Acids</td>
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