Test Definition: MG_F

Magnesium, Feces

Overview

Useful For

Workup of cases of chronic diarrhea

Identifying the use of magnesium-containing laxatives contributing to osmotic diarrhea

Method Name

Colorimetric Titration

NY State Available

Yes

Specimen

Specimen Type

Fecal

Ordering Guidance

This test is **only** clinically valid if performed on watery specimens. In the event a formed fecal specimen is submitted, the test will not be performed.

Specimen Required

Patient Preparation: No barium, laxatives, or enemas may be used for 96 hours prior to start of, or during, collection.
Supplies: Stool containers - 24, 48, 72 Hour Kit (T291)
Container/Tube: Stool container
Specimen Volume: 10 g
Collection Instructions: Collect a very liquid stool specimen.

Specimen Minimum Volume

5 g

Reject Due To

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

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Fecal	Frozen (preferred)	14 days	
	Ambient	48 hours	
	Refrigerated	7 days	

Clinical & Interpretive

Clinical Information

The concentration of electrolytes in fecal water and their rate of excretion are dependent upon 3 factors:
-Normal daily dietary intake of electrolytes
-Passive transport from serum and other vascular spaces to equilibrate fecal osmotic pressure with vascular osmotic pressure
-Electrolyte transport into fecal water due to exogenous substances and rare toxins (eg, cholera toxin)

Fecal osmolality is normally in equilibrium with vascular osmolality, and sodium is the major effector of this equilibrium. Fecal osmolality is normally 2 x (sodium + potassium) unless there are exogenous factors inducing a change in composition, such as the presence of other osmotic agents (magnesium sulfate, saccharides) or drugs inducing secretions, such as phenolphthalein or bisacodyl (1).

Osmotic diarrhea is caused by ingestion of poorly absorbed ions or sugars.(1) There are multiple potential causes of osmotic diarrhea. Measurement of magnesium in liquid stool can assist in identifying intentional or inadvertent use of magnesium and/or phosphate containing laxatives as the cause.(2-4) The other causes of osmotic diarrhea include ingestion of osmotic agents such as sorbitol or polyethylene glycol laxatives, or carbohydrate malabsorption due most commonly to lactose intolerance. Carbohydrate malabsorption can be differentiated from other osmotic causes by a low stool pH (<6).(5,6)

Reference Values

An interpretive report will be provided

Interpretation

Magnesium-induced diarrhea should be considered if the osmotic gap is above 75 mOsm/kg and is likely if the magnesium concentration is above 110 mg/dL.

Cautions

In very rare cases, gammopathy, in particular type IgM (Waldenstrom macroglobulinemia), may cause unreliable results.

Clinical Reference

1. Steffer KJ, Santa Ana CA, Cole JA, Fordtran JS: The practical value of comprehensive stool analysis in detecting the cause of idiopathic chronic diarrhea. Gastroenterol Clin North Am. 2012;41:539-560
2. Ho J, Moyer TP, Phillips SF: Chronic diarrhea: the role of magnesium. Mayo Clin Proc. 1995;70:1091-1092
3. Fine KD, Santa Ana CA, Fordtran JS: Diagnosis of magnesium-induced diarrhea. N Engl J Med. 1991;324:1012-1017
4. Fine KD, Ogunji F, Florio R, Porter J, Ana CS: Investigation and diagnosis of diarrhea caused by sodium phosphate. Dig Dis Sci. 1998;43(12):2708-2714
5. Eherer AJ, Fordtran JS: Fecal osmotic gap and pH in experimental diarrhea of various causes. Gastroenterology. 1992;103:545-551
6. Casprary WF: Diarrhea associated with carbohydrate malabsorption. Clin Gastroenterol. 1986;15:631-655

Performance

Method Description
In an alkaline solution, magnesium forms a purple complex with xylidyl blue, a diazonium salt. The magnesium concentration is measured photometrically via the decrease in the xylidyl blue absorbance.(Package insert: Magnesium reagent. Roche Diagnostics; V8.0 01/2020)

PDF Report
No

Day(s) Performed
Monday, Thursday

Report Available
1 to 3 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & 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 account representative. For assistance, contact Customer Service.

Test Classification
This test has been modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
83735

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MG_F	Magnesium, F	29911-5

Result ID	Test Result Name	Result LOINC® Value

Test Definition: MG_F

Magnesium, Feces

MG_F	Magnesium, F	29911-5