FECAL ANALYSIS IN THE DIAGNOSIS OF INTESTINAL DYSBIOSIS
MED207.118
POSTED DATE: 6/11/2003
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COVERAGE:

A Fecal analysis panel consisting of ALL the following components is considered experimental or investigational as a diagnostic test for the evaluation of intestinal dysbiosis, irritable bowel syndrome, malabsorption, or small intestinal overgrowth of bacteria:

- Triglycerides, AND
- Chymotrypsin, AND
- Iso-butyrate, iso-valerate and n-valerate, AND
- Meat and vegetable fibers, AND
- Long chain fatty acids, AND
- Cholesterol, AND
- Total short chain fatty acids, AND
- Levels of Lactobacilli, bifidobacteria and Escherichia coli (E-coli) and other “potential pathogens,” including Aeromonas, Bacillus cereus, Campylobacter, Citrobacter, Klebsiella, Proteus, Pseudomonas, Salmonella, Shigella, S. aureus, Vibrio.,
- Identification and quantitation of fecal yeast (including C. albicans, C. tropicalis, Rhodotorula and Geotrichum), AND
- N-butyrate, AND
- Beta-glucoronidase, AND
- pH, AND
- Short chain fatty acid distribution (adequate amount and proportions of the different short chain fatty acids reflect the basic status of intestinal metabolism), and/or
- Fecal secretory IgA.

DESCRIPTION:

Intestinal dysbiosis may be defined as a state of disordered microbial ecology that causes disease. The concept of dysbiosis rests on the assumption that patterns of intestinal flora, specifically overgrowth of some microorganisms found commonly in intestinal flora, have an impact on human health. Symptoms and conditions attributed to dysbiosis include chronic intestinal disorders including irritable bowel disease, inflammatory or autoimmune disorders, food allergy, atopic eczema, unexplained fatigue, arthritis and ankylosing spondylitis, malnutrition or neuropsychiatric symptoms including autism, and breast and colon cancer. Leo Galland, MD, is a researcher who has focused his studies on dysbiosis. Dr. Galland has proposed four patterns of dysbiosis:

- Putrefaction
Putrefaction dysbiosis results from diet high in fat and animal flesh and low in insoluble fiber, i.e., typical of Western style diet. It is thought that, compared to normal patterns of intestinal flora, this diet produces an increased concentration of Bacteriodes sp, and a decreased concentration of bifidiobacteria in stools. The increased concentration of Bacteriodes sp is thought to be associated with increased urease, ultimately leading to a rising fecal pH. Bacteriodes sp is also thought to be associated with increased beta-glucoronidase, which functions to deconjugate bile acids (which are thought to be toxic to the colonic epithelium) causing diarrhea. Increased levels of beta-glucoronidase may also impact estrogen metabolism.

- **Fermentation**

  A fermentation pattern of dysbiosis has been attributed to bacterial overgrowth. In mild cases, fermentation may be characterized principally by carbohydrate intolerance, manifested by abdominal distention, flatulence, diarrhea, constipation and feelings of malaise.

- **Deficiency**

  Antibiotic therapy or decrease in dietary fiber may result in relative deficiencies of normal fecal flora, including bifidiobacteria, lactobacillus, and E. coli.

- **Sensitization**

  A sensitization pattern of dysbiosis has been characterized as an abnormal immune response to the endotoxins and antigens associated with normal intestinal flora.

Laboratory analysis of both stool and urine have been investigated as markers of dysbiosis. Reference laboratories specializing in the evaluation of dysbiosis may offer comprehensive testing of various aspects of digestion, absorption, microbiology, and metabolic markers. For example, the Great Smokies Diagnostic Laboratory offers a "Comprehensive Digestive Stool Analysis" that evaluates a stool sample for the following components:

**Digestion**

- Triglycerides
- Chymotrypsin
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- Iso-butyrate, iso-valerate, and n-valerate
- Meat and vegetable fibers

### Absorption

- Long chain fatty acids
- Cholesterol
- Total fecal fat
- Total short chain fatty acids

### Microbiology

- Levels of Lactobacilli, bifidobacteria, and *E. coli* and other “potential pathogens,” including *Aeromonas, Bacillus cereus, Campylobacter, Citrobacter, Klebsiella, Proteus, Pseudomonas, Salmonella, Shigella, Staphylococcus aureus,* and *Vibrio.*
- Identification and quantitation of fecal yeast (including *Candida albicans, C. tropicalis, Rhodotorula* and *Geotrichum.*

### Metabolic Markers

- N-butyrate (considered a key energy source for colonic epithelial cells)
- Beta-glucoronidase
- pH
- Short chain fatty acid distribution (adequate amount and proportions of the different short chain fatty acids reflect the basic status of intestinal metabolism)

### Immunology

- Fecal secretory IgA (as a measure of luminal immunologic function)

Results are reported both individually, or combined into a “dysbiosis risk index,” which is based upon gut microbiology, pH, and short chain fatty acids.

### Rationale:

While the literature includes much discussion regarding the relationship between intestinal microflora and various disorders, intestinal dysbiosis as a specific disorder is poorly defined. A literature search revealed no published studies establishing diagnostic criteria for this disorder. The gastrointestinal symptoms attributed to intestinal dysbiosis (i.e., bloating, flatulence, ...
diarrhea, or constipation), overlap in part with either irritable bowel syndrome or small intestinal bacterial overgrowth syndrome. The diagnosis of irritable bowel syndrome is typically made clinically, based on a set of criteria referred to as the “Rome” criteria. The small intestine normally contains a limited number of bacteria, at least in comparison to the large intestine. Small intestine bacterial overgrowth may occur due to altered motility (including blind loops), decreased acidity, exposure to antibiotics, or surgical resection of the small bowel. Symptoms include malabsorption, diarrhea, fatigue, and lethargy. Although the diagnosis of bacterial overgrowth may be made clinically and the condition treated empirically with antibiotics, the laboratory gold standard for diagnosis consists of a culture of a jejunal fluid sample. Recently, hydrogen breath tests, commonly used to evaluate lactose intolerance, have been adapted for use in diagnosing both small intestinal bacterial overgrowth and irritable bowel disease. No studies in the published literature were identified that described analysis of a stool sample as a diagnostic technique for irritable bowel syndrome or small intestine bacterial overgrowth.

Measurements of fecal fat (i.e., qualitative, quantitative, and fat differential) are established diagnostic techniques for malabsorption. In contrast, a literature search did not identify any published studies regarding the diagnostic performance of fecal analysis of digestion, absorption, microbiology, metabolic markers, or immunology as a workup of malabsorption syndrome, small intestine bacterial overgrowth, or intestinal dysbiosis. Chronic intestinal candidiasis has been linked with various gastrointestinal complaints as well as systemic complaints, such as chronic fatigue syndrome. Similar to intestinal dysbiosis, chronic intestinal candidiasis is an ill-defined condition without established diagnostic parameters.

PRICING:

All laboratory components of the fecal analysis panel must be present on the claim as indicated in the coverage section of this policy before this panel can be identified as Fecal Analysis for the diagnosis of dysbiosis.

REFERENCES:

Fecal Analysis in the Diagnosis of Intestinal Dysbiosis

American Journal of Gastroenterology 2000 (95): 3503-06.


DISCLAIMER:

State and federal law, as well as contract language, including definitions and specific inclusions/exclusions, takes precedence over Medical Policy and must be considered first in determining coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Any benefits are subject to the payment of premiums for the date on which services are rendered. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

HMO Blue Texas physicians who are contracted/affiliated with a capitated IPA/medical group must contact the IPA/medical group for information regarding HMO claims/reimbursement information and other general polices and procedures.