UNDERSTANDING BACTERIAL OVERGROWTH

Description
Cause
Diagnosis
Treatment

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BACTERIAL OVERGROWTH

- Too many bacteria in small intestine (>100,000 cfu/ml) (SIBO)

- Colonic bacteria in small intestine.

- Wrong type of bacteria in colon
  - D-lactic acidosis
  - Auto brewery syndrome

- Adverse symptoms and consequences
GASTROINTESTINAL TRACT

1- 4 hour stomach emptying time

3 hour small bowel transit time

12 - 24 hour colon transit time
Normal Intestinal Flora (Microbiotica)
NORMAL MAINTENANCE OF GI FLORA

- Stomach acid
- Bile
- Pancreatic enzymes
- Secretory IgA
- Peristaltic contractions
- Ileocecal valve (ICV)
- Limited CHO avail
FACTORS CONTRIBUTING TO SIBO

- Decreased gastric acid
- Decreased bile or pancreatic enzymes
- Decreased secretory IgA
- Lack of ileocecal valve
- Decreased intestinal motility
- Intestinal strictures, blind loops, fistulas, diverticulosis
- Unabsorbed carbohydrate
- Antibiotics
SIGNS & SYMPTOMS OF SIBO

- Gas and Bloating
- Abdominal pain or discomfort
- Diarrhea
- Steatorrhea (fat in stools)
- Weight loss
ADVERSE CONSEQUENCES OF SIBO

- Symptoms
- Inflammation and damage of intestinal mucosa
- Decreased nutrient absorption
  - B12
  - Fat and fat-soluble vitamins (A, D, E)
  - Carbohydrate (especially lactose)
  - Protein
DIAGNOSIS OF SIBO

- Small bowel aspirate
- Hydrogen and methane breath tests
- Symptoms and response to therapy
SIBO DIAGNOSIS BY SMALL BOWEL ASPIRATE

- Collect small bowel fluid by endoscopy

- Culture aspirate ($>10^5$ cfu/ml = abnormal)

- Limitations
  - Expensive
  - Invasive
  - May miss organisms in lower bowel
  - Offending organisms may not grow in culture
SIBO DIAGNOSIS BY HYDROGEN AND METHANE BREATH TESTS
HYDROGEN OR METHANE BREATH TESTS
LIMITATIONS OF BREATH TESTS

- Not all offending bacteria produce hydrogen or methane
- Rapid GI transit distorts results
- Delayed gastric emptying impacts results
- Test may cause abdominal symptoms or diarrhea
SIBO DIAGNOSIS BY SYMPTOMS AND RESPONSE TO THERAPY

- Presence of symptoms consistent with SIBO
- Known risk factors for SIBO
- Response to therapy
TREATMENT OF SIBO

- Poorly absorbed antibiotics
- Herbals/botanicals
- Probiotics
- Fecal transplants
- Motility agents
- Review need for acid blocking meds
- Reduce carbohydrate intake
- Replete nutritional deficiencies
- Correct anatomical abnormalities
CONCLUSION

Bacterial overgrowth is a complex problem, with multiple contributing factors, leading to its development. More research is needed, to develop better diagnostic and treatment options.