World Gastroenterology Organisation Practice Guidelines:

Constipation

Contents

1 Definition

Constipation is a symptom, not a disease.

The patient's view. Different patients have different perceptions of symptoms. Some patients regard constipation as straining (52%), while for others, it means hard, pellet-like stools (44%) or an inability to defecate when desired (34%), or infrequent defecation (33%).

The clinical view. There is constipation if patients who do not take laxatives report at least two of the following in any 12-week period during the previous 12 months (the Rome Criteria):

- Fewer than three bowel movements (BMs) per week
- Hard stool in more than 25% of BMs
- A sense of incomplete evacuation in more than 25% of BMs
- Excessive straining in more than 25% of BMs
- A need for digital manipulation to facilitate evacuation

2 Pathogenesis

There are many causes of constipation, and mostly they are poorly understood. The literature provides many overlapping and sometimes conflicting lists of causes. An overview of possible causes is given below. It is helpful to distinguish between motility disorders and pelvic floor disorders (structure and function).

Motility disorders are can be associated with:

- Insufficient nutrition
  — Inadequate fiber intake
  — Dehydration caused by low fluid intake
- Impaired colon motility
  — Colonic inertia
  — Slow-transit constipation
  — Irritable bowel syndrome (IBS)
  — Intestinal myopathy
  — Ogilvie syndrome
  — Drugs
  — Neurological causes: spinal cord injury, Parkinson's disease, multiple sclerosis
- Psychiatric factors
  — Depression
  — Sexual abuse
  — Unusual attitudes to food and bowel function

Pelvic floor disorders can be caused by:

- Impaired function of the pelvic floor and/or external sphincter (spastic pelvic floor syndrome, anismus)
- Pelvic floor obstruction
- Rectal prolapse
- Enterocele
- Rectal intussusception
- Rectocele

The literature distinguishes different classifications of pathophysiological subgroups; the most common one is as follows:

- Functional constipation (slow-transit constipation)
- Irritable bowel syndrome (IBS)
- Outlet obstruction

Being able to differentiate between these will help tailor treatment to individual circumstances.

Research shows that colorectal functions are not significantly affected by the aging process. Constipation in older people is therefore not a result of aging, but is instead related to an increase in constipation-promoting factors such as chronic illnesses, immobility, neurologic and psychiatric conditions, and medicines used.

In infancy and childhood, most constipation is functional rather than organic. However, when treatment fails and if there is delayed passage of meconium and/or other alarm signs, Hirschsprung's disease is a special risk in infants. Constipation in children can also be associated with very specific causes such as coercive toilet training, sexual abuse, excessive parental interventions, and toilet phobia.

3 Risk factors

Risk situations, groups and factors:

- Infants and children
- People over the age of 55
- Recent abdominal or perianal/pelvic surgery
- Late pregnancy
- Limited mobility
- Inadequate diet (fluid or fiber)
- Medication (polypharmacy), especially in the elderly
- Laxative abuse (normal long-term use is not a problem)
- Known comorbidities (see Tables **1** and **2**)
- Terminal care patients
- Travel
- History of chronic constipation

Older people are five times more likely than younger adults to develop constipation. Mostly this is due to diet factors, lack of exercise, use of medication, and poor bowel habits. Constipation can also be imagined, and symptom perception varies.

Constipation in infants and children poses special problems. Usually, it is functional rather than organic and is mostly due to poor bowel habits.

Idiopathic slow-transit constipation (STC) and colonic inertia develop almost exclusively in young women under the age of 25.

Women in late pregnancy, older people and patients in terminal care are especially at risk to develop constipation.

Contrary to commonly held opinion, long-term laxative use does not pose any risks and does not lead to a “lazier bowel.”

Table **1** Causes of constipation

Extrinsic
- Inadequate dietary fiber, fluid
- Ignoring urge to defecate

Structural
- Colorectal: neoplasm, stricture, ischemia, volvulus, diverticular disease
- Anorectal: inflammation, prolapse, rectocele, fissure, stricture

Systemic
- Hypokalemia
- Hypercalcemia
- Hyperparathyroidism
- Hypothyroidism
- Hyperthyroidism
- Diabetes mellitus
- Panhypopituitarism
- Addison's disease
- Pheochromocytoma
- Porphyria
- Uremia
- Amyloidosis
- Scleroderma, polymyositis
- Pregnancy

Neurological
- CNS: Parkinson's disease, multiple sclerosis, trauma, ischemia, tumor
- Sacral nerves: trauma, tumor
- Autonomic neuropathy
- Aganglionosis (Hirschsprung's disease)

Drugs
- Opiates
- Anticholinergics
- Antidepressants
- Antipsychotics
- Anticonvulsants
- Antacids (aluminum, calcium)
- Antihypertensives
- Calcium-channel blockers
- Diuretics
- Ganglionic blockers
- Iron supplements
- Nonsteroidal antiinflammatory drugs
- Cholestyramine

Uncertain pathophysiology
- Irritable bowel syndrome
- Slow-transit constipation
- Pelvic floor dysfunction

Table **2** Medications associated with constipation

Analgesics
- Non-steroidal anti-inflammatory agents, opiates

Anticholinergics
- Atropine agents, antidepressants, neuroleptics, anti-parkinsonian drugs

Anticonvulsants

Antihistamines

Antihypertensives
- Calcium channel antagonists, clonidine, hydralazine, MAO inhibitors, methyldopa

Chemotherapeutic agents
- Vinca derivatives

Diuretics

Metal ions
- Aluminum (antacids, sucralfate), barium sulfate, bismuth, calcium, iron, heavy metals (arsenic, lead, mercury)

Resins
- Cholestyramine, polystyrene

4 Diagnosis and differential diagnosis

There are many different causes of constipation. Some patients do not have a clearly identifiable cause; they are diagnosed with irritable bowel syndrome or idiopathic chronic constipation (including STC and pelvic floor dysfunction). As there is no gold standard, self-reported symptoms are necessary, but unreliable. There is no agreement, for example, on what constitutes a BM. Work is continuing to establish a definition of BM on the basis of scales of stool form, as a useful guide to intestinal transit time.

It is important to be systematic:

- History taking
- Physical examination
- Diagnostic techniques

History taking

- Check for Rome Criteria
- Check for neurologic disorders:
  — Spinal cord injury
  — Parkinson's disease
  — Multiple sclerosis
- Check for psychiatric conditions:
  — Sexual abuse, violence, trauma
  — Unusual attitude/behavior towards BM
  — Depression/somatization
  — Eating disorders
- Check for age of onset (sudden or gradual)
  — SUDDEN onset may indicate outlet obstruction
- Is urge present or not?
  — Yes: outlet obstruction?
  — No: colonic inertia?
- Is there a family history of constipation?

Physical examination

- Percussion (check for gas)
- Palpable feces ("loaded colon")
- Rectal touch
  — Consistency/impaction
  — Presence of nonfecal masses (tumor, hemorrhoid, fissures, fistulas, prolapse, neoplasms)
  — Presence of blood
  — Sphincter tone

Diagnostic techniques

- Stool analysis (assess seriousness)
- Weighing 3 days; < 100 g average means constipation
- Abdominal radiography (assess seriousness)
- Barium enema (to assess/exclude obstructions):
  — Megacolon
  — Redundant sigmoid colon
  — Pattern of haustral folds:
  IBS patients: normal-length haustral colon
  Colon inertia: longer, less haustral colon
- Barium radiography is preferable to and cheaper than colonoscopy, especially in younger patients
- Anorectal function tests
  — Manometry (no rectoanal inhibition reflex in Hirschsprung's disease)
  — Electromyography; spastic pelvic floor dysfunction?
- Rectal mucosa biopsy:
  — Acetylcholinesterase coloring to exclude Hirschsprung's disease. Pigmentation of colonic mucosa
- Colon transit time (radiopaque markers)

Organic, metabolic, and endocrine disease can be excluded with occult blood tests, blood cell count, thyrotropin, and calcium levels. A plain radiograph can suggest megacolon. Barium enema is easier and cheaper than colonoscopy for excluding megacolon, megarectum, and any colorectal obstruction. Flexible sigmoidoscopy and colonoscopy can be used to exclude structural diseases (fissures, strictures, tumors).

There is no clear agreement as to which tests are likely to be useful in the diagnostic evaluation of patients with constipation. IBS, for example, remains one of the most difficult conditions to diagnose, because of its uncertain pathophysiology and the lack of diagnostic tests. Anorectal manometry and defecography and electromyography, like radiopaque transit-time studies, are complex and time-consuming and require resources that are not always available outside of well-equipped academic centers.

Major alarm symptoms, especially in patients over the age of 50:

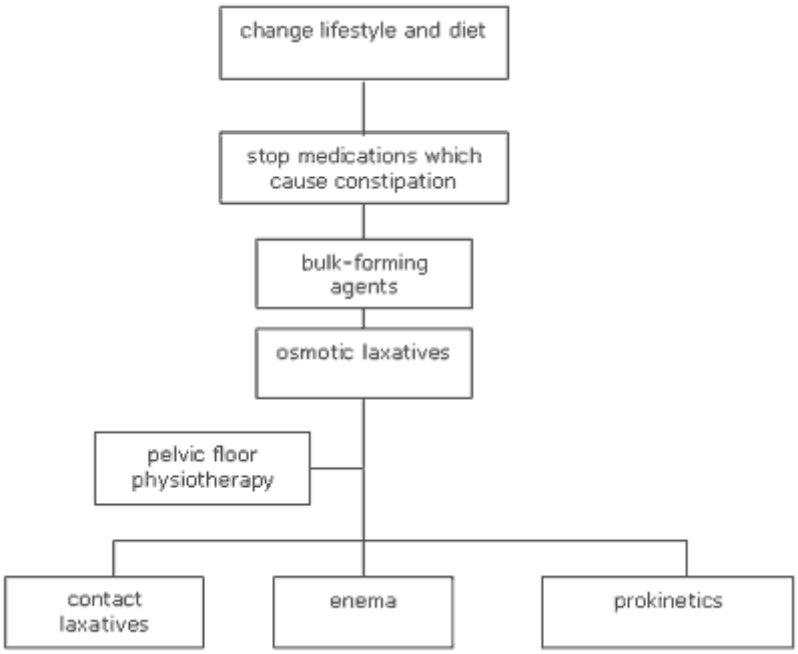
- New-onset constipation
- Anemia
- Weight loss

- Rectal bleeding
- Positive occult blood test
- Sudden change in BMs

5 Treatment approaches

Treatment of constipation is symptomatic. Available studies have concentrated on therapies with fiber and different laxatives. Whilst therapy with fiber and with laxatives has some benefit in improving the quantity and quality of BMs, there is no clear evidence regarding which laxative is superior. Treatment should be graded and should start with lifestyle and diet changes (Fig. **1**). Any medication that can cause constipation should be stopped if possible. Further steps include the use of bulk-forming agents, osmotic laxatives, and possibly pelvic floor physiotherapy. If these fail, a next step can be the use of contact laxatives, enemas, and prokinetics. Surgery—for example in Ogilvie syndrome—is only indicated in exceptional circumstances when all other conservative treatments have proved ineffective, or when there is a risk of perforation of the cecum.

Fig. **1** Graded treatment of constipation



Fiber and laxatives

Systematic reviews of the treatment of chronic constipation show that fiber and laxatives increase the frequency of BMs by an overall weighted average of 1.4 BMs per week. Breakthrough laxatives did not produce similar results. Fiber and bulk laxatives decrease abdominal pain and improve stool consistency. Data on non-bulk laxatives are less conclusive, although cisapride, lactulose, and lactitol improved consistency. There is too little evidence to determine whether fiber is superior to laxatives, or which class of laxative is superior. Table **3** lists the laxatives most frequently used in adults.

Table **3** Laxatives

Bulk laxatives

- *Psyllium*
- Polycarbophil
- Methylcellulose

Lubricating agents

- Mineral oil

Stimulant laxatives

- Surface-acting agents

— Docusate
— Bile acids

- Diphenylmethane derivatives

— Phenolphthalein
— Bisacodyl
Sodium picosulfate

- Ricinoleic acid

— Castor oil

- Anthraquinones

— Senna
— Cascara sagrada
Aloes
Rhubarb

Osmotic agents

- Magnesium and phosphate salts
- Lactulose
- Sorbitol
- Glycerin suppositories
- Polyethylene glycol

Bulk-forming laxatives

Only to be used if an increase in dietary fiber does not work. They act by causing retention of fluid and an increase in fecal mass. Flatulence and distension may occur, but long-term use is safe. Adequate fluid intake is essential.

Stimulant laxatives

These act by directly stimulating the colonic nerves. The effect is usually within 8–12 hours; suppositories are faster, at 20–60 minutes. Routine use of danthron is discouraged due to its potential carcinogenicity.

Osmotic laxatives

These act by retaining fluid in the bowel by osmosis, changing the water distribution in the feces. This means that a good fluid intake is important.

Specific situations

- The elderly
- Pregnancy

- Children
- Diabetic patients
- Terminal care

The elderly. The main problems here are lack of mobility and polypharmacy. Treatment is the same as for younger adults, with an emphasis on changing lifestyle and diet. For immobility, it is better to use stimulant laxatives instead of bulking agents. Senna-fiber combinations are more effective than lactulose. It is important to try and stop potentially constipating drugs.

Pregnancy. Use dietary fiber, increased fluid intake, and exercise as the main treatment options. Laxatives can be used if this fails. Use drugs only for short periods. Drug safety is the main concern in pregnancy. Bulking agents are thought to be safer than stimulants. Senna is considered safe at normal doses, but caution is necessary when it is used near term or if the pregnancy is unstable. Bulking agents and lactulose will not enter breast milk. Senna, in large doses, will enter breast milk and may cause diarrhea and colic in infants.

Children. Use a high-fiber diet and plenty of fluid first. Avoid excessive milk consumption. Laxatives can be given (oral therapy is best) if increased fiber and fluids fail. There is no evidence regarding which class of laxatives is superior. Early start of treatment is important, as chronic constipation can lead to megarectum, impaction, and overflow soiling. Long-term use of a stool softener is often prescribed to prevent the recurrence of fecal impaction. Regular use is important, as intermittent use can cause relapses.

Diabetic patients. Bulk-forming laxatives are safe and useful for those unable or unwilling to increase dietary fiber. Diabetics should avoid stimulant laxatives such as lactulose and sorbitol, since their metabolites may influence blood glucose levels, especially in patients with brittle type 1 diabetes.

Terminal care. Prevention of constipation is of great importance in the terminally ill. Dehydration and use of prophylactic laxatives is important. If feces are hard and the rectum is full, fluids with co-danthramer, glycerin suppositories, or docusate are recommended. If feces are soft, stimulant laxatives such as senna or bisacodyl can be used. If the colon is full and with colic present, a stool softener such as docusate can be used. Co-danthramer is recommended if colic is absent. Lactulose is an alternative to docusate, although it can lead to bloating and possible postural hypotension (fluid shift to the bowel).

Conclusions

Evidence for the efficacy of current treatment options is limited. Bulking agents are not always effective and can even cause fecal impaction. Stool softeners are often effective. The safety of one group of stimulant laxatives—anthraquinones such as senna, aloes, and dantron—is still controversial. New pharmacotherapy approaches are focusing on stimulating giant migrating contractions using selective 5-hydroxytryptamine type 4 (5-HT_4) receptor agonists (prucalopride) and tegaserod (HTF-919). The main approach always is to start with lifestyle and diet changes before commencing treatment with laxatives.

Prevention

- Know what is normal and do not rely unnecessarily on laxatives
- Eat a well-balanced diet that includes bran, wholewheat grains, fresh fruit, and vegetables
- Drink enough fluids
- Exercise regularly
- Set aside time for undisturbed toilet visits
- Do not ignore the urge to defecate

6 References

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7 Useful web sites

- The National Library of Medicine's PubMed/Medline is the best starting-point for general medical enquiries: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi
- The National Health Service in the United Kingdom provides notes on constipation: http://www.nhsdirect.nhs.uk/articles/article.aspx?articleId=111&sectionId=30351
- The National Digestive Diseases Information Clearinghouse in the USA also publishes a summary on constipation: http://digestive.niddk.nih.gov/ddiseases/pubs/constipation/index.htm
- The National Institute on Aging in the USA has a web-based constipation guideline: http://www.nia.nih.gov/HealthInformation/Publications/constipation.htm
- The American Gastroenterological Association has a useful constipation guideline, a very good starting-point for patient information: http://www.gastro.org/wmspage.cfm?parm1=687

8 Queries and feedback

The Practice Guidelines Committee welcomes any comments and queries that readers may have. Do you feel we have neglected some aspects of the topic? Do you think that some procedures are associated with extra risk? Tell us about your own experience. You are welcome to click on the link below and let us know your views.

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