

CONSTIPATION

KEY POINTS

- *Most cases of constipation in adults are mild and intermittent and respond to lifestyle changes such as increasing fibre in the diet, increased fluid intake and exercise*
- *On assessment it is important to identify any red flags that may indicate more serious disease or the need for referral*
- *Treatment with a laxative may be required if general lifestyle advice is not helpful*
- *Choice of laxative is based on the cause of constipation, symptoms, patient preferences, potential side-effects and time to effect*
- *Constipation is also common in children and long term use of laxatives may be required when dietary measures fail - osmotic laxatives, such as lactulose, are the preferred initial treatment*

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Constipation is characterised by persistent, difficult or seemingly incomplete defaecation which may be accompanied by abdominal pain or bloating. In terms of bowel frequency, definitions differ, as bowel habits vary widely between individuals, but will usually be reported to the GP as a deviation from the norm. Constipation is more common in women than men and incidence increases with age.

International consensus (Rome II) diagnostic criteria define constipation in terms of multiple symptoms (e.g. straining, hard stools) and/or a bowel movement frequency of less than three times per week (page 14). These criteria are mainly used for research purpose and are not always applicable to general practice.¹

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MOST CASES OF CONSTIPATION ARE NOT CAUSED BY AN IDENTIFIABLE PHYSICAL OR PATHOLOGICAL CONDITION

Most cases of constipation in adults are relatively mild and intermittent and can often be linked to lifestyle factors, poor diet, (e.g. low fibre and low fluid intake) immobility, stress and suppressing the urge to defecate.

A number of drugs (Table 1) can cause or aggravate constipation. The main mechanism is slowing of gut motility due to anticholinergic or antispasmodic effects but in some cases the mechanism is not clear. Drug induced constipation is often exacerbated, especially in older people, by comorbidities such as Parkinson's disease, reduced fluid intake, poor diet and decreased mobility. When assessing a person with constipation it is important to consider drugs (prescribed and purchased over the counter) as a possible cause or contributing factor.

Complications and consequences

Persistent constipation or inappropriately treated constipation may lead to complications of varying severity. These include haemorrhoids, faecal impaction, faecal and urinary incontinence, rectal bleeding, anal fissures, urinary tract infection and psychological disorders.

Table 1: Some drugs or drug groups that can cause or aggravate constipation (MeReC 2004)¹

- Antacids containing aluminum or calcium
- Antispasmodics (e.g. propantheline, hyoscine-butyl-bromide [buscopan])
- Antidepressants, especially tricyclic antidepressants
- Antihistamines (especially older sedating ones such as promethazine [phenergan] or chlorpheniramine [polaramine])
- Antipsychotics
- Antiparkinsonism drugs including those with anticholinergic effects (e.g. benztropine, orphenadrine, procyclidine) and dopamine agonists (e.g. bromocriptine)
- Calcium supplements
- Calcium channel blockers, especially verapamil
- Diuretics (secondary to dehydration)
- Iron salts (irrespective of which preparation is used)
- Ondansetron
- Opioids
- Oxybutinin and similar drugs used for incontinence
- Proton pump inhibitors (e.g. omeprazole, lansoprazole)
- Vinca alkaloids (used in chemotherapy)

Constipation may result from underlying conditions such as;

- Irritable bowel syndrome
- Dehydration
- Diabetes
- Neurological conditions such as Parkinson's and MS
- Electrolyte disorders such as hypercalcaemia or hypokalemia
- Depression and other psychiatric disorders
- Coeliac disease
- Hypothyroidism
- GI obstruction (e.g. due to tumours)
- Damage to pelvic floor muscles, for example after childbirth
- Anatomical or physiological causes

Chronic Constipation (functional)

Rome II criteria

1. Loose stools are not present and there are insufficient criteria for IBS.
2. To meet the criteria patients need to experience at least two of the following for at least 12 weeks (which need not be consecutive) in the preceding 12 months:
 - Straining >25% of the time
 - Lumpy or hard stools >25% of defaecations
 - Sensation of incomplete evacuation >25% of defaecations
 - Sensation of anorectal obstruction/blockage >25% of defaecations
 - Manual manoeuvres to facilitate >25% of defaecations
 - <3 defaecations per week

MANAGEMENT OF CONSTIPATION

The first step in management is to gain an understanding of the possible cause for constipation and whether it is acute or chronic.

Acute constipation, for example in a younger patient immobilised from a fracture, is usually easy to manage and may only require short term treatment with a stimulant laxative.

Chronic constipation needs more careful assessment. The most common causes are medications, especially opioids, and slow transit. Less common is dyssynergia (uncoordinated rectal emptying). Patients with dyssynergia complain of prolonged and excessive straining and will often resort to digital manipulation to empty the rectum.

The steps below help formulate a management plan:

- Identify any physical or pathological cause for the constipation
- Identify any **red flags** which may indicate significant pathological disease or physical cause
- Consider pre-disposing conditions including causative drug treatment and manage appropriately
- Address lifestyle issues such as increasing fluid and fibre intake and increasing exercise
- Consider an oral laxative if lifestyle issues are ineffective or whilst lifestyle modifications take effect
- Choose a laxative based on the cause of the constipation, symptoms, patient preferences and prior experiences, potential side effects, time to effect and cost
- Consider a rectal laxative such as an enema if an oral preparation is ineffective or rapid relief is required
- Give the smallest effective dose of laxative and reduce or stop when symptoms resolve

DIETARY AND LIFESTYLE ADVICE

- **Increasing the fibre content** of the diet will increase the frequency of bowel motions in constipated patients. A high fibre diet consists of 18–30 g fibre per day from fruit, vegetables, wholemeal bread, cereals and grain foods. Oat bran or unprocessed bran can be taken with food or fruit juice. Benefit may be apparent in three to five days but the diet should be tried for at least a month.
- **Maintaining fluid intake** should help prevent constipation. Two litres of water daily is recommended for people on a high fibre diet. Avoid a high fibre diet if adequate fluid intake is not possible.
- **Regular exercise** encourages peristalsis in the colon and should be part of a management plan for constipation

A high fibre diet is generally less effective if constipation is secondary to slow transit (reduced gut motility). Constipation secondary to opioid analgesic use usually requires more aggressive management than just fibre supplementation.

Constipation **'Red Flags'** which may indicate the need for further investigation (based on MeReC, 2004, Prodigy, 2007)^{1,2}

- Blood in the stools
- New onset or worsening constipation in people aged over 50
- Concurrent weight loss, nausea, vomiting, anorexia or fever
- Severe abdominal pain
- Co-existing or alternating diarrhoea
- Persistent symptoms
- Tenesmus
- Failure of laxative treatment and lifestyle modifications

Table 2: Classes of laxatives

Class of Agent	Examples	Time to effect
Bulking Agents	Unprocessed bran	2–3 days
	Soluble fibres (mucilaginous laxatives) - Psyllium (Konsyl D, Mucilax, metamucil) - Ispaghula (Isogel)	2–3 days 2–3 days
Stimulant Laxatives	Docusate sodium with sennosides Coloxyl with Senna	8–12 hours
	*Codalax (Danthron with Poloxamer)	6–12 hours
	Bisacodyl - Oral (Dulcolax; Bisacodyl AFT) - Rectal (Dulcolax, Fleet)	10–12 hours 20–60 min
Faecal softeners	Docusate sodium (also has stimulant activity) - Oral (Coloxyl Tablets) - Enema (Coloxyl enema concentrate)	12–72 hours 15–20 mins
	Poloxamer (Coloxyl drops)	12–24 hours
	Osmotic Laxatives	Lactulose (Laevolac)
Macrogols (polyethylene glycols) (Movicol)		1–3 days
Glycerol Suppositories (also has a stimulant effect)		15–60 min
Sodium acid phosphate (Fleet enema)		15 min
Herbal Laxatives	There are numerous preparations available	Action often unpredictable and not generally recommended

* Currently unavailable

CHOOSING A LAXATIVE

Laxatives are categorised according to their properties (Table 2). They vary in their time to effect and mode of action.

There are very few studies which have compared the effectiveness of the various classes of laxatives, and generally the choice of agent is based on potential causes of the constipation, symptoms, patient preferences and prior experiences, potential side effects, time to effect and cost.

Constipation caused by an opioid analgesic will usually require a laxative which includes a stimulant such as senna (Table 2). A bulk former used in this situation could lead to impaction and a stool softener or osmotic preparation would not solve the underlying problem of reduced gut motility.

The prolonged use of laxatives is not usually necessary but may be appropriate in situations where constipation may re-occur if they are stopped. For example, for inactive or immobile people, those receiving opioids or other constipating drugs, those with chronic neurological conditions such as Parkinson's disease and occasionally for children.

Generally, all oral laxative preparations should be avoided in people with intestinal obstruction² but there is evidence of safe and effective use of macrogols in malignant obstruction.

BULK FORMING LAXATIVES

These add bulk to the stool and stimulate peristalsis. Several days are required for effect and they are not suitable for acute relief of constipation. They are useful for people with normal gut motility and uncomplicated constipation, who require long-term control.

They should be avoided in people with intestinal obstruction, colonic atony, faecal impaction or dehydration.² Their main side effects are abdominal bloating and flatulence.

Many bulk laxatives are now easier to mix and administer as they are formulated as a mucilaginous gel.

FAECAL SOFTENERS

These agents lower surface tension and allow water to penetrate hard dry faeces.

Softeners are often combined with a stimulant where they are especially useful for opioid induced constipation. Enemas are also available to give a more rapid action.

Docusate is a faecal softener with some stimulant activity. Oral docusate should be avoided in people with intestinal obstruction.

OSMOTIC LAXATIVES

These work in the lumen of the colon to draw water in to the gut by osmosis. Osmotic laxatives need to be taken in combination with a good fluid intake.

Lactulose, an osmotic laxative, is fermented by gut bacteria to produce short chain fatty acids with resultant beneficial effects on gut motility and flora. It is a synthetic combination of galactose and fructose which is not absorbed in the gastrointestinal tract and can be taken by people with diabetes (avoid in those with galactosaemia). It needs to be taken regularly and takes at least two or three days to work so will not give immediate relief. Abdominal discomfort and flatulence are common side effects and some people find it unpalatable.

Macrogols (e.g. Movicol) are relatively new products and appear to be at least as effective as lactulose and may cause less flatulence. However, there is no evidence that they are more effective or superior to more established, less expensive agents.¹ Macrogols should be avoided in people with severe inflammatory conditions of the gut (e.g. Crohn's disease, ulcerative colitis, toxic megacolon).²

STIMULANT LAXATIVES

These increase intestinal motility by direct stimulation of colonic nerves to increase the movement of faeces. They are often suitable for short term use to restore normal bowel function and are usually taken at night to produce an effect the next morning.

Bisacodyl stimulates small as well as large bowel motility. Bisacodyl suppositories can be used for rapid evacuation.

Senna is available in combination with faecal softeners and is especially useful in longer term management of opioid induced constipation. The use of danthron containing preparations is restricted to terminal care due to concerns about its potential for carcinogenicity.

Abdominal cramps are common with stimulants and they should be avoided if there is a possibility of intestinal obstruction. Prolonged use of stimulant laxatives can lead to diarrhoea and associated fluid and electrolyte imbalance (e.g. hypokalemia) particularly if fluid intake is inadequate.

RECTAL PREPARATIONS (SUPPOSITORIES AND ENEMAS)

These are used if oral preparations are ineffective or if impaction is low down the intestinal tract. Avoid rectal preparations if haemorrhoids or anal fissures are present.

The choice of product is governed by the site of the impaction and stool type.²

- Phosphate enemas (e.g. Fleet) are suitable for hard impacted stools
- Bisacodyl suppositories can be used for soft stools in the lower rectum
- Glycerol suppositories are often effective for both soft and hard stools in the lower rectum
- Docusate enemas (e.g. Coloxyl) can be used for clearing both hard and soft stools occurring higher in the rectum

Care is required in administering rectal agents as tears and perforations can occur.

LAXATIVE MISUSE AND EATING DISORDERS

Misuse of laxatives can occur in people with eating disorders such as anorexia and bulimia but also in normal or overweight persons. Laxative misuse in the UK has been reported at 2% in secondary school students and 13% in college students.³ All health care providers need to be aware of the possibility of misuse, especially pharmacists, as many laxatives can be purchased easily without prescription.

The aims of treatment are to restore the normal pattern of defaecation and relieve discomfort. Generally a step wise approach is recommended in which possible causes are identified and managed, lifestyle changes tried and laxatives used if these approaches fail. If drug treatment is required, use the least number of drugs for the shortest time to avoid laxative dependence.³

CONSTIPATION IN CHILDREN

Constipation is common in children and can present at three important stages of childhood, in infants at weaning, in toddlers acquiring toilet skills and at school age.

DEFINITION OF CONSTIPATION IN CHILDREN

The diagnostic criteria are different to those of adults. There have been various attempts to define chronic constipation in children and the most commonly adopted is the Rome III criteria (see opposite)^{4,5}

- The most common cause for constipation in children is functional (90–95%)
- Most children with constipation are developmentally normal
- Performing a thorough history and examination is sufficient to diagnose functional constipation in most cases

Many conditions may pre-dispose children to constipation including ADHD, autism, coeliac disease, cystic fibrosis, dehydration, metabolic conditions, psychological conditions and dietary factors.

INVESTIGATION OF CONSTIPATION IN CHILDREN

Careful questioning about the frequency of stooling is important, as well as the shape and consistency of the stool.

Infants under six months often strain or become distressed when stooling (dyschezia), which in a healthy infant can be considered normal, and should not be mistaken for constipation.

Some older children may also withhold defaecation, which causes the stool to become hard and defaecation painful. This compounds the problem and the constipation may reach a stage where there is overflow incontinence.

- Growth parameters should be checked to ensure there is normal growth
- Abdominal examination should check for distension and palpable stool particularly in the left lower quadrant and lower abdomen
- The perianal area should be checked for sensation, anal fissures and the position of the anus
- Rectal examination is controversial. It will confirm constipation if the rectal vault is full of firm stool and it does allow assessment of anal tone, however it is invasive
- Occasionally an abdominal x-ray is useful to confirm significant faecal retention
- Rectal biopsy and rectal (balloon) manometry are the only tests that can reliably exclude Hirschsprung's disease

Diagnosis of constipation in children using Rome III criteria (Rubin 2006)⁶

For diagnosis of functional constipation under the Rome III criteria symptoms must include at least two of the following;

- Two or fewer defaecations per week
- At least one episode per week of faecal incontinence after the child has acquired toileting skills
- History of excessive stool retention or retentive posturing
- History of painful or hard bowel movements
- Presence of large faecal mass in rectum
- History of stools with a large diameter which may obstruct the toilet
- In infants and children up to age four, these symptoms must be present for at least one month, in children aged over four, symptoms must be present for at least two months, with insufficient criteria for the diagnosis of irritable bowel syndrome

MANAGEMENT

The data for effectiveness of the various treatments (fibre, biofeedback, behavioural modification, laxatives) for constipation in children is not robust.

Initially dietary measures may be tried if constipation is not too severe or longstanding. Increasing fruit and vegetable consumption as well as drinking plenty of fluids may be useful. Regular toileting after dinner, by sitting on the toilet for five minutes, may establish a habit and provide the opportunity for daily bowel evacuation, taking advantage of the gastro-colic reflex.

If general measures are not helpful, laxatives will be required and treatment may be necessary for several months or years depending on the severity and duration of symptoms.⁷ Once regular bowel function has been restored, laxatives can be gradually withdrawn but relapse may occur. It is therefore important to inform parents of this and explain that progress can be slow.

For significant faecal impaction, the use of a short course of glycerine suppositories for infants and enemas for children (e.g. microlax) may help to dislodge the stool, allowing laxatives to work more effectively and faster.

Lactulose is commonly used in children and the dose can be split into two divided doses if there is an increase in bloating or flatulence.

Suggested initial doses of lactulose in children (adjust according to response):⁷

1 month–1 year	2.5 mL twice daily
1–5 years	5 mL twice daily
5–10 years	10 mL twice daily
10 years and above	15 mL twice daily

If osmotic laxatives or softeners fail to resolve the constipation, the addition or substitution of a stimulant laxative (senna or bisacodyl) may be required, but their chronic use is controversial and they are best prescribed on the advice of a paediatrician. Prolonged use of stimulant laxatives can give rise to atonic colon and hypokalaemia and consequently it has been suggested that they are used intermittently to avoid impaction.⁷

Macrogols (e.g. Movicol) are effective both for faecal disimpaction and also as maintenance therapy for constipation that is difficult to manage.

Referral to a paediatrician should be considered when treatment fails, when there is concern that there is organic disease or if management is complex.

“It is important that constipation and faecal retention are recognised early as treatment may be less prolonged. When a child reaches the stage of soiling, treatment is likely to be much more prolonged, than parents expect. Slowly down titrating the lactulose dose is important as relapse is not uncommon.”

REFERENCES

1. MeReC. The management of chronic constipation. MeReC Bulletin 2004;14:6. Available from <http://snipurl.com/1rs2h> accessed September 2007.
2. Prodigy. Guidance on the management of constipation. Clinical knowledge summaries. 2007 Available from; <http://snipurl.com/1rab8> accessed September 2007.
3. Allen S. How to deal with constipation. Pharm J 2007;279:23-26.
4. Rasquin A, Di Lorenzo C, Forbes D et al. Childhood functional gastrointestinal disorders: child/adolescent. Gastroenterology 2006;130:1527-37.
5. Hyman PE, Milla PJ, Benninga MA, et al. J. Childhood functional gastrointestinal disorders; neonate toddler. Gastroenterology 2006;130:1519-26.
6. Rubin G, Dale A. Chronic constipation in children. BMJ;2006;333:1051-5.
7. BNF for Children. London. BMJ Publishing Group Ltd. 2006.

USEFUL WEBSITES

- Best Treatments <http://snipurl.com/1rabc>
- Constipation in childhood. CORE. <http://snipurl.com/1rabe>