

Managing constipation in children

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Introduction

Constipation occurs in up to 30% of children worldwide and is one of the most common chronic disorders of childhood¹ causing significant distress to the child and family.² Healthcare costs for children with constipation are three times as much as for those without constipation. Constipation starts during the first year of life in up to 40% of children with peak prevalence during the preschool years.³ More than 95% of cases in children older than one year of age are due to functional constipation. Most children with functional constipation require prolonged treatment and have frequent relapses.¹

Definition and aetiology of constipation

Constipation is a disorder associated with infrequent bowel movements (two or less per week) and passing large-calibre hard stools that may require excessive straining and cause pain.⁴

Organic constipation

Organic causes are responsible for less than 5% of cases in children with constipation and are more common in young infants, especially those younger than six months of age.^{1,3} Constipation due to organic disease (structural or

biochemical) may include conditions such as Hirschsprung disease, hypothyroidism, diabetes, coeliac disease, cow's milk intolerance and cystic fibrosis.⁵ The alarm signs listed in Table 1 may indicate organic causes of constipation and these children need to be referred for further investigation.³

Functional constipation

Functional constipation requires exclusion of organic causes and as per Rome IV criteria, should include at least two of the six criteria below, occurring at least once a week for at least one month:^{3,6}

1. Two or less defaecations per week
2. History of excessive deliberate stool retention
3. History of hard or painful bowel movements
4. History of large diameter stools that can obstruct the toilet
5. Presence of large faecal mass in the rectum
6. At least one episode per week of faecal incontinence (soiling) in fully toilet-trained children

Functional constipation is most commonly caused by painful bowel movements that prompt the child to voluntarily withhold stool by stiffening the body to contract the anal sphincter or gluteal muscles. Withholding of stool can lead to prolonged stasis in the colon, increasing reabsorption of fluid resulting in harder and larger stools that are more painful to pass.¹ As the rectum stretches to accommodate retained faecal mass, rectal sensation decreases and faecal incontinence (soiling) may occur. This cycle commonly coincides with toilet training, dietary changes, illness, stressful events, lack of accessible toilets or may occur in children who are too 'busy' and defer defaecation.¹

Treatment

Early treatment of recent onset constipation (within the past two weeks) is essential in order to prevent the cycle of

Table 1. Alarm signs that may suggest organic causes of constipation³

| Acute signs | Chronic signs |
|---|---|
| <ul style="list-style-type: none"> • Delayed passage of meconium (> 48 hours after birth) • Severe abdominal distension • Fever, vomiting or diarrhoea • Rectal bleeding | <ul style="list-style-type: none"> • Constipation present from birth or early infancy • Ribbon stools (very narrow in diameter) • Urinary incontinence or bladder disease • Weight loss or poor weight gain • Delayed growth • Neurological deficits (e.g. Down's syndrome) |

stool withholding that can lead to worsening and recurrent constipation. Addition of sorbitol-containing juices (see below) and dietary fibre to the diet should be followed by close monitoring to ensure that constipation is resolved. Occasional use of glycerine suppositories may be necessary but should be limited as tolerance may develop.⁴

The treatment of functional constipation requires a comprehensive approach that includes education of parent and child, behaviour interventions, dietary changes, pharmacotherapy and frequent close follow-up to ensure that movements occur at regular intervals with good evacuation.^{1,5} In toddlers with constipation, toilet training should be postponed as it may not be effective until rectal awareness is restored and defaecation is pain-free.⁵ Parents should be aware that the entire process can take up to six months or several years and gradual improvement should be expected with occasional relapses.

Education and behaviour changes

The first step in treatment involves education of the parent. Parents should understand that soiling occurs from involuntary overflow of stool and not from voluntary defiance. Parents should be encouraged to maintain a supportive and positive attitude throughout treatment. Implementation of regular toileting for five or ten minutes following meals, combined with a system rewarding sitting (with or without bowel movement) is often helpful towards changing behaviour.^{1,5} Rewards may include access to a specific toy or book reserved for toilet-sitting sessions only. Proper positioning on the potty or toilet with feet flat on the floor or a footstool so as to raise the knees is important as this relaxes the pelvic floor and is helpful in children who tend to withhold stools.⁵

Dietary changes

Dietary changes are often advised for children with functional constipation. This includes an increased intake of fluids with absorbable and non-absorbable carbohydrates such as prune, pear or apple juice that contains sorbitol. The recommended dose for infants younger than four months is around 30 ml per day and children older than four months, 60 ml per day. The juice can be diluted with equal parts of water for palatability.^{1,4}

Increased fibre intake in the form of peas, beans, prunes, peaches, plums and apricots is recommended for infants older than four months and for children older than one year, broccoli and whole-grain foods such as multi-grain or barley cereal,⁴ brown rice or whole-wheat bread should be considered.⁷ Avoid bananas, apple sauce, sweets, and limit milk and cheese intake.⁷

Pharmacological treatment

Treatment of constipation in children typically includes four general steps for bowel retraining:⁵

- Disimpaction
- Prolonged behaviour therapy and laxative treatment to achieve regular evacuation and avoid recurrent constipation
- Dietary changes to maintain soft stools
- Gradual tapering and withdrawal of laxatives as tolerated

Disimpaction

Disimpaction is required where necessary before maintenance therapy can be initiated in children with faecal impaction.^{1,5} This can be accomplished by using oral or rectal medication or a combination of both. Oral treatment is preferred, especially in children with a history of painful defaecation or perianal trauma.⁵ Oral polyethylene glycol (PEG) based solutions are easy to administer, non-invasive and well tolerated.¹ Children with severe constipation and those who need rapid disimpaction may need enemas or brief hospitalisation.⁵ Both PEG and enemas are equally effective for faecal disimpaction.² Table II provides details on therapies and dosing that may be used for disimpaction.¹

Table II. Treatment options for disimpaction in children^{1,8,9}

| Therapy | Dose |
|---|---|
| Oral | |
| Osmotic laxatives | |
| Macrogol (PEG) (Purgoped) [*] | Dissolve 1 sachet in 62,5 ml water. Administer as per the regimen below in divided doses within 12 hours. Stop treatment upon disimpaction. Children 2–4 years 2 sachets on day 1; 4 sachets on days 2 and 3; 6 sachets on days 4 and 5; 8 sachets on days 6 and 7 |
| Magnesium citrate [*] | < 6 years: 2–4 ml/kg per day 6–12 years: 100–150 ml per day > 12 years: 150–300 ml per day |
| Stimulant laxatives | |
| Senna (Sennokot [®]) [*] | 2–6 years: 0.5–1.5 tablets per day 6–12 years: 1–2 tablets per day |
| Bisacodyl [*] | ≥ 2 years: 1–3 [*] tablets per day as a single dose at night |
| Rectal | |
| Enemas (one per day) | |
| Saline | 5–10 ml per kg |
| Mineral oil [*] | 15–30 ml per year of age up to 240 ml |
| Sodium phosphate | 2–12 years: 64 ml > 12 years: 135–150 ml as per manufacturer's dosing instructions |
| Suppositories | |
| Bisacodyl (Dulcolax [®]) | 1–12 years: 1 paediatric suppository as single daily dose |
| Glycerine | < 6 years: 0.5–1 paediatric suppository > 6 years: 1 adult suppository |

^{*} Not registered for this indication and/or at these doses in South Africa

Maintenance therapy

The goal of maintenance therapy is to achieve at least one soft stool, preferably once per day.^{1,5} Combination of laxatives with behaviour therapy is recommended rather than each intervention on its own.⁵

The choice of laxative is based on age, body weight and severity of constipation. The ultimate choice is not as important as using an adequate dose and assuring compliance.⁵ Overall, PEG achieves equal or better treatment success than other laxatives such as lactulose or milk of magnesia but may be associated with more episodes of faecal incontinence.¹ PEG is also well-tolerated by children.⁵ Lactulose is suitable for children of all ages and is recommended when PEG is not available.² Table III provides a summary of treatment options and dosing of maintenance therapy.^{1,8,9} Stimulant laxatives are not routinely recommended and should be reserved as rescue therapy if the child goes more than three days without passing a stool or shows other indications of recurrence such as hard stools, soiling or abdominal pain.^{1,5}

Table III. Maintenance therapy for children with functional constipation^{1,8,9}

| Therapy | Dose |
|--|--|
| Osmotic laxatives | |
| Macrogol 3350 (PEG) (Pegicol Plain [®] or Purgoped [®]) | Dissolve 1 sachet in 62,5 ml water 2–6 years: 1 sachet daily 7–11 years: initially 2 sachets daily and adjust to produce regular soft stools up to max. of 4 sachets daily |
| Lactulose | Infants: 2.5–5 ml 1–5 years: 5–10 ml 6–14 years: 10–15 ml |
| Stimulant laxatives (rescue therapy) | |
| Senna (Senokot [®]) | 2–6 years: 0.5–1 tablet daily 6–12 years: 1–2 tablets daily |
| Bisacodyl | 6–12 years: 1 tablet daily |

Tapering

Once the passing of soft stools at regular intervals has been achieved and maintained for six months, the frequency of mandatory toilet-sitting and laxative dose can be reduced. Most children with functional constipation may require

ongoing laxative treatment for one or more years. Stopping laxative use too soon may result in recurrence and disrupt the treatment programme. With the dose reduction of laxatives, the importance of dietary changes and behavioural therapy increases.⁵ Even in patients compliant with behaviour and pharmacotherapy, complete success is achieved in only 60% of children with functional constipation after one year of treatment and up to 75% after five years.^{1,5}

Conclusion

Children with recent onset constipation should be treated promptly to prevent deliberate withholding that can worsen and result in recurrent constipation. Proper evaluation is required, especially in children younger than one year to exclude organic causes. In patients with functional constipation, initial disimpaction should be followed by prolonged maintenance therapy with PEG or lactulose and behaviour therapy including dietary changes to enable the passing of a soft stool, preferably once a day. Stimulants should not be used routinely and should be reserved for rescue therapy if the child has not had a stool in more than three days. Laxative dose and mandatory toilet-sitting may be reduced once the child has maintained regular soft stools for at least six months. It is important to educate parents on behaviour therapy and the importance of maintaining a positive attitude throughout the treatment programme.

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