



# Overview of Constipation in Children

Yoseph Arif Putra,<sup>1</sup> Feby Febriana<sup>2</sup>

<sup>1</sup> Dokter PTT Puskesmas Tanjung Batu, <sup>2</sup> Dokter PTT Puskesmas Kundur Barat,  
Kabupaten Karimun, Provinsi Kepulauan Riau, Indonesia

## ABSTRACT

Constipation is very common in primary or secondary health care, the prevalence varies from 0.07%-29.6%. The prevalence of functional constipation in children ranges from 4-36%, up to one third of children ages 6 to 12 years are reported to have constipation. Constipation generally first appears between the ages of two and four years. The cause is usually non-organic in about 90% cases. The most widely accepted definitions for childhood functional constipation is Rome III definitions. The symptoms include infrequent stools, pain, soiling, stool withholding maneuvers, blood in stools, enuresis, and other urinary symptoms. The differential diagnosis is divided into two large groups, intraabdominal and extraabdominal. Constipation is diagnosed by history, physical examination and clinical investigation. Treatment should include disimpaction and maintenance.

**Keywords:** Constipation, disimpaction, non-organic

## ABSTRAK

Konstipasi adalah gejala yang sangat umum, baik di pelayanan kesehatan lini pertama maupun kedua, prevalensinya 0,07% - 29,6%. Prevalensi konstipasi fungsional pada anak berkisar 4-36%. Lebih dari sepertiga anak-anak usia 6-12 tahun dilaporkan menderita konstipasi. Konstipasi biasanya muncul pertama kali antara usia dua dan empat tahun. Penyebab non-organik pada lebih dari 90% kasus. Definisi yang paling sering dipakai adalah definisi Rome III. Gejala-gejalanya adalah buang air besar tidak rutin, nyeri, *soiling*, manuver menahan buang air besar, darah pada feses, tidak dapat menahan berkemih, dan gejala berkemih lainnya. Diagnosis banding terdiri dari dua kelompok besar, intraabdomen dan ekstrabdomen. Konstipasi didiagnosis dengan anamnesis, pemeriksaan fisik, dan pemeriksaan penunjang. Penatalaksanaan termasuk disimpaksi dan terapi pemeliharaan. **Yoseph Arif Putra, Feby Febriana. Tinjauan atas Masalah Konstipasi di Kalangan Anak**

**Kata kunci:** Disimpaksi, konstipasi, non-organik

## INTRODUCTION

Constipation in children is very common in primary and secondary health care, and may have a serious effect on health. The cause of constipation is usually non-organic. The prevalence varies from 0.07%- 29.6%. The prevalence of functional constipation in children ranges from 4-36%. In hospital setting, pediatric constipation accounts for 3% of all referrals to pediatric practice and up to 25% to pediatric gastroenterologists. A recent American study suggests that the health cost for children with constipation is estimated at \$3.9 billion/year.<sup>1-3</sup>

The etiology of constipation is still not fully understood, there are many contributing factors such as pain, fever, dehydration, dietary and fluid intake, psychological issues, toilet training, medicines, and familial history of constipation. Constipation is considered idiopathic if it cannot be anatomically

or physiologically explained. The signs and symptoms of childhood idiopathic constipation include: infrequent bowel activity, foul smelling wind and stools, excessive flatulence, irregular stool texture, passing occasional enormous stools or frequent small pellets, withholding or straining to stop passage of stools, soiling or overflow, abdominal pain, distension or discomfort, poor appetite, lack of energy, an unhappy, angry or irritable mood and general malaise.<sup>2</sup>

As the children grow up, normal physiologic changes in the intestinal tract cause a decrease in daily stool from a mean of 2.2 times in infants to a mean of 1.4 in one- to three-year old children. Thus, less frequent stooling may not be constipation. Constipation is defined as "failure to evacuate the lower colon completely"; even children who pass daily stool in small amounts may be considered to have constipation. Encopresis,

which is the involuntary leakage of feces into undergarments, may be an indication of constipation.<sup>4</sup>

Acute constipation can cause anal fissure and becomes chronic. Children with constipation have a poorer quality of life than children with inflammatory bowel disease. Recent studies suggest that, if untreated or under-treated, it can persist into adulthood.<sup>2,5</sup> In 2008 Chao and colleagues studied 2,426 children with chronic constipation and demonstrated that functional disorder was capable of retarding growth in children; but with adequate therapy, were able to achieve normal growth potential.<sup>6</sup>

## DEFINITION

There is wide variation of normal defecation patterns in children, normal ranges are depending on age and residence. The most widely accepted definitions for childhood

Alamat Korespondensi email: yosephchen22@gmail.com



functional constipation are the Rome III definitions (Table 1).

**Table 1.** Rome III diagnostic criteria for functional constipation<sup>7</sup>

In the absence of organic pathology, $\geq 2$ of the following must occur
For a child with a developmental age <4 years
1. $\leq 2$ defecations per week
2. At least 1 episode of incontinence per week after the acquisition of toileting skills
3. History of excessive stool retention
4. History of painful or hard bowel movements
5. Presence of a large fecal mass in the rectum
6. History of large-diameter stools that may obstruct the toilet
Accompanying symptoms may include irritability, decreased appetite, and/or early satiety, which may disappear immediately following passage of a large stool
For a child with a developmental age $\geq 4$ years with insufficient criteria for irritable bowel syndrome
1. $\leq 2$ defecations in the toilet per week
2. At least 1 episode of fecal incontinence per week
3. History of retentive posturing or excessive volitional stool retention
4. History of painful or hard bowel movements
5. Presence of a large fecal mass in the rectum
6. History of large-diameter stools that may obstruct the toilet

Abdominal pain is a frequent symptom, but is not considered a criterion for functional constipation. The role of constipation in children with predominant abdominal pain is not clear.<sup>1,7</sup> More recently, the term 'non-retentive fecal soiling' has been described for children soiling without difficult infrequent defecation. PACCT (The Paris Consensus on Childhood Constipation Terminology Group) have defined this as passage of stools in an inappropriate place, occurring in children with a mental age of 4 years and older, with no evidence of constipation on history or examination.<sup>1</sup>

The Iowa criteria for constipation in children  $\geq 2$  years of age include two or more of the following during the previous 8 weeks:

- $\geq 1$  episode(s) of fecal incontinence per week
- Large stools in the rectum or felt on abdominal examination
- Passing of stools so large that they obstruct the toilet
- Retentive posturing (withholding behavior)
- Painful defecation
- < 3 bowel movement(s) per week.

In a recent Turkish study on 485 children treated for constipation, 33 children (6.8%) did not fulfill the Rome III criteria due to age restriction, 45 (9.2%) children were not

recognized using the PACCT criteria due to only having scybalous, pebble-like defecation pattern (rather than passing large stools obstructing the toilet). Only 60% had a defecation pattern of less than 3 per week.<sup>1</sup>

#### ETIOLOGY

Recognizing the causes or the trigger of constipation is very important. Constipation may be caused by secondary to inadequate evacuation as a result of rushing to school in the morning, hurried use of school toilet, withholding stools while occupied by something of greater interest. Decreased fluid intake can produce hard stool. Children with inadequate toilet training tend to be more susceptible for constipation. These children may benefit more from constant encouragement using star charts/other reward techniques, rather than confrontation.<sup>1</sup>

Secondary constipation due to hypothyroidism, Hirschsprung's disease, or calcium levels are rare and accounts for less than 10% of cases. Cow's milk protein allergy, particularly non-IgE mediated with associated colonic dysmotility may manifest as secondary constipation, its prevalence is up to 40% of refractory constipation. Up to 63% of children with constipation and fecal soiling will have a history of painful defecation before 3 years of age and secondary withholding stool behavior after painful passing. Childhood chronic constipation results mostly from intentional or subconscious withholding of stool.<sup>10</sup> Passage of large, hard stools that painfully stretch the anus may frighten the child, resulting in fearful determination to avoid all defecation. Such children respond to the urge to defecate by contracting their anal sphincter and gluteal muscles, attempting to withhold stool. Eventually the rectum habituates to the stimulus of the enlarging fecal mass, and the urge to defecate subsides.<sup>8</sup>

#### SYMPTOMS

##### Infrequent Stools

Reduced bowel movement is common in diagnosis. In a study of 178 children with constipation in Iowa,<sup>9</sup> 58% had < 3 bowel movement(s) per week and in another study,<sup>10</sup> 41.3% of children with symptoms of constipation were found to have infrequent stools. Children < 2 years of age had symptoms of passage of hard or pebble-like stools with straining, withholding or painful

defecation. The diagnosis would be missed in 50% if infrequent stools were the only criteria.<sup>1</sup>

##### Pain

Pain in the abdomen or during defecation may be present. Non-specific abdominal pain has been reported in 33% of children with constipation in one study.<sup>9</sup> Pain or scream during or in anticipation of stools is observed in up to 68% children with constipation. They may pass blood with stools.<sup>1</sup>

##### Soiling

Fecal incontinence has been associated with 'constipation' in up to 90%. Soiling is involuntary, often small as stains in underwear. Larger amount can be mistaken for diarrhea.<sup>1</sup>

##### Stool withholding Maneuvers

This may be misinterpreted as straining. In infants, back arching, and in older infants/toddlers, standing on toes, extending legs or rocking back and forth preventing anal relaxation are typical features. Some children may hide in a corner standing stiff or squatting.<sup>1</sup>

##### Blood in Stools

Fissures may bleed and painful during defecation in older children, blood may be present in wiping tissue paper. Children with polyps are commonly present with painless bleeding. Rectal bleeding in infancy is often associated with cow's milk protein allergy rather than constipation.<sup>1</sup>

##### Enuresis and Other Urinary Symptoms

Urinary symptoms have been reported in 9-13% of children with constipation; urinary incontinence in 10.5%. It has been implicated in the pathoetiology of enuresis.<sup>1</sup>

##### Associated Features

###### ■ Obesity

A higher incidence of obesity has been found in constipated children, compared to the general pediatric population, with associated psychosocial issues, poor diet, low activity levels, and compliance problems.

###### ■ Poor fluid intake

Optimal fluid intake is recommended by NICE as a necessary adjunct in the management of constipation. However, excessive fluid intake can result in reduction in eating/fiber, which may be counter-productive.<sup>1</sup>







Dietary interventions can not be used as a first line therapy for idiopathic constipation. NICE recommended dieatry modifications (adequate fibre and sufficient fluids), and lifestyle modifications (use of encouragement and rewards systems).<sup>2</sup> Laxative such as bisacodyl are available in the primary health

care. Parents' understanding and education should improve the outcome.

### SUMMARY

Constipation in children is often undiagnosed and untreated due to ignorance and lack of

knowledge. Constipation can have a huge impact on children's quality of life. Early diagnosis and treatment of constipation in children can be done in primary health care. Referral to secondary or third health care should be done if the results are unsatisfactory.

### REFERENCES

1. Afzal NA, Tighe MP, Thomson MA. Constipation in children. *Italian J Pediatr*. 2011;37: 28. doi: 10.1186/1824-7288-37-28
2. Rawlinson Z. NICE guidelines: Constipation in children [Internet]. 2010. Available from: <http://www.gponline.com/nice-guidelines-constipation-children/gi-tract/article/1027773>
3. Sadeghzadeh M, Rabieefar A, Khoshnevisasl P, Mousavinasab N, Eftekhari K. The effect of probiotics on childhood constipation: A randomized controlled double blind clinical trial. *Internat J Pediatr*. 2014; 2014:1.
4. Biggs WS, Dery WH. Evaluation and treatment of constipation in infants and children. *Am Fam Physician* 2006;73:469-77.
5. Cohn A. Clinical features, psychological issues and management of constipation in childhood. *Nurs Children and Young People*. 2011;23(3):29-35.
6. Walia R, Mulhearn N, Khan R, Cuffari C. Chronic constipation in children: An overview. *Pract Gastroenterol*. 2013;119: 18-9.
7. Tabbers MM, DiLorenzo C, Berger MY, Faure C, Langendam MW, Nurko S, et al. Evaluation and treatment of functional constipation in infants and children: Evidence-based recommendations from ESPGHAN and NASPGHAN. *JPGN*. 2014;58: 258-74.
8. Hamadi AK, Hamadi T. Constipation in infants and children: Evaluation and management. *Bulletin of the Kuwait Institute for medical specialization*. 2005; 4:8-16.
9. Loening-Baucke V. Constipation in early childhood: Patient characteristics, treatment, and longterm follow up. *Gut*. 1993, 34:1400-4.
10. Loening-Baucke V. Prevalence rates for constipation and faecal and urinary incontinence. *Arch Dis Child* 2007; 92:486-9.
11. Karami H, Shokohi L. Management of childhood constipation. *J Pediatr Rev*. 2013;1(1):45-51.
12. Croffie MJ. Constipation in children. *Indian J Pediatr*. 2006; 73(8): 697-701