Clinical Guideline

CONSTIPATION

SETTING	Primary Healthcare Institutions in the Western Cape which refer to Red Cross War Memorial Children's Hospital (RCWMCH)
FOR STAFF	Primary Care Nurses and Doctors who refer patients to RCWMCH
PATIENTS	Patients under the age of 13 years old constipation

Introduction

Constipation is a common condition seen in childhood. Most cases can be successfully managed at primary level while a few may need referral for initial management at secondary care. Further investigation and management by gastroenterology in a small proportion of these and only select few of these will need surgical intervention.

Doctors and nurses in primary level care are responsible to distinguishing between patients who can be safely managed at that level and those who need further investigation and management. This guideline is designed to assist clinicians to identify organic causes and red flags for specialist referral to support in this process.

Using this guideline will enable clinicians to confidently manage most cases of constipation safely in the primary care space. The guideline provides the information and tools needed to identify patients who should be referred for a specialist opinion or care at the secondary level.

Background

True constipation should be differentiated from a short period of hard stools or a child who stools infrequently but is otherwise well with no complications or concerns arising from this. Stooling patterns at different age groups vary. This is partly to do with changing toddler diet and the process of potty training and is not always an indication of pathology.

Most cases of constipation are "functional" or idiopathic. This means that there is no underlying cause that needs to be addressed and that the constipation will resolve with first line treatment. These cases should be managed at the primary level of care. In a small proportion of cases an underlying condition or structural abnormality is the reason the symptoms of constipation are present – this is often referred to as "organic" constipation. This these cases referral to an appropriate specialist team is indicated.

The initial assessment of a patient with constipation aims to confirm that there is true constipation that needs treatment and then to evaluate if the constipation is "functional" or "organic". This guideline will provide an approach that can be used to achieve this.

In all cases where it is thought that the constipation is "functional", the next step in management will be to initiate appropriate treatment according to the pattern and severity of symptoms. In cases which "organic" constipation is identified, referral to the appropriate specialist should take place.

It is important to follow up patients with functional constipation after the initial intervention to confirm success of treatment, to adjust treatment or to identify patients who are not improving on first line treatment and thus need referral to secondary.

Important details on history

- Age at onset of constipation
- Time of passage of meconium
- Number of stools per week
- Consistency of stools
- Associated symptoms & behaviours
    - Cramping, anal pain, straining
    - Relief of abdominal symptoms after passage of stool
    - Withholding behaviours (holding stool in, scissoring etc)
    - Episodes of soiling or faecal incontinence
    - History of urinary tract infections/incontinence
- Factors which predispose to constipation
    - Whether or not the patient has any comorbidities that may predispose to constipation
    - If the patient is on any constipating medications
    - Whether or not the patient's dietary intake is contributing to their constipation
    - If there are psychosocial stressors or social issues that are contributing to constipation

Common comorbidities which predispose to constipation:

- Cerebral palsy or other central nervous system abnormalities
- Inherited and genetic abnormalities (Trisomy 21, cystic fibrosis, etc)
- Spinal defects (myelomengingocele, tethered cord, sacral agenesis, previous pelvic or spinal surgery, traumatic spinal cord injury, etc)
- Autism
- Hypothyroidism
- Any anorectal disorder (imperforate anus, Hirschsprung's disease)

Medications that contribute to constipation:

- Recent use of opioid analgesia
- ADHD & anti-depressant medication
- Iron supplementation

Diet

Poor diet frequently plays a significant role in functional constipation. Ask the caregiver to list every meal, snack and drink given over the last 24 hours, or what a typical day's menu would look like.

Infants <6 months old

- Establish breast vs formula vs mixed feeds
- Establish how formula is mixed (correct powder to water ratio)
- Establish total volume given in a 24 hour period
- Confirm that no other feeds are being given such as:
    - Cereals & other weaning foods
    - Cow's milk
    - Juice
    - Water

Infants 6 – 12 months old

- Establish frequency of meals

- Establish ratio of breast or formula milk feeds to solid feeds (ie: how many millilitres or bottles a day, & how many meals a day)
    - Vegetables and fruit should be consumed 3 to 5 times a day, e.g. 1-2 tablespoons soft-cooked vegetables and cut pieces of steamed dry or fresh soft fruit. These can be cut fine and mixed into cereal or starch.
    - Ensure no cow's milk or juice
    - Water may be given in small amounts in addition to breastmilk/ formula milk
    - Avoid sugary foods

Children >1 year old

- Vegetables, pulses and/ fruit should be consumed 3 to 5 times a day, cooked and/or raw.
- Cow's milk may be given instead of formula milk but should be restricted to 2 cups (500ml) per day as dairy can cause constipation
- Limit low-fibre, refined, processed and sugary foods such as chips, biscuits, white bread, white rice, "two minute" noodles and pastries. Encourage high fibre alternatives such as brown bread, fruit and vegetables, and wholegrain pasta or other grains and cereals that can also be mixed with vegetables and/or fruit e.g. samp and beans, oats and grated apple etc.
- Encourage water rather than juice consumption. Sugary drinks have an osmotic effect leading to increased urination which can lead to dehydration and increase risk of constipation.

Home & social factors

- Psychological stressors
    - School: new school, issues such as bullying and teasing, poor school performance
    - Family: divorce, recent deaths, abusive or aggressive family or household members

- Social issues
    - Lack of access to clean, safe toilets at home or at school
    - Lack of time to complete bowel movement (leaving home very early or getting back very late, insufficient numbers of toilets at school, etc)

A 'Stool diary' is a useful tool to gain insight in a patient's stooling patterns.

This is a daily record of the following:

- Number of stools passed
- Consistency & size of stools
- Episodes of soiling and accidents
- Associated urinary symptoms
- Water and diet consumed

Important details on examination

The purpose of examination is to confirm that the child has no physical findings that may indicate an underlying organic cause for the constipation.
RED FLAGS that should prompt referral or further investigation include:

- An acutely ill child with vomiting, abdominal distension, peritonism, dehydration or evidence of sepsis.
- Chronic abdominal distension
- A child with malnutrition or failure to thrive

- Any evidence of an occult spinal defect
- Any evidence of an anorectal malformation

General examination:
- Nutritional status: look for evidence of malnutrition and obesity
- Is the child acutely ill?
- Are developmental milestones on track, or is there evidence of delay?
- Is there obvious evidence of abnormal or inappropriate behaviour for the child's age?

Look for evidence of overt or occult spinal dysraphism
- Dimple, sinus, mass, naevus, or tuft of hair on the lower back
- Asymmetry of buttocks or back
- Flat buttock muscles
- Low-rising gluteal crease
- Abnormal lower limb neurology (check power, reflexes and gait are all normal)

Abdomen
- Distension
- Visible loops of bowel
- Palpable bladder
- Obvious masses: Tumour, hepato- or splenomegaly, Palpable faecaloma

Perineum & anus
- Is anus the expected size and in the correct position
- Evidence of skin tags and fissures
- Evidence of active or previous peri-anal fistulae or abscesses?

Digital rectal examination

- This is important to detect pre-sacral masses
- Useful in infants when Hirschsprung's is suspected (look for explosive release of gas and liquid stool)
- DO NOT force a rectal examination on any child who is not compliant but note very clearly that the examination was omitted to alert the next clinician to the fact that there may be missing information in your assessment.

Important special investigations at primary

Patients with a history of UTI
- Kidney, ureter and bladder ultrasound on a non-urgent outpatient basis

Referral guidance

Refer patient with **Red Flags** or underlying organic pathology

Clinical scenario	Referral guidance
Failure to thrive, wasting, abdominal distension and vomiting	Refer to **general paediatric service** for further assessment

Evidence of occult spinal dysraphism	Refer to **general paediatric service** for further assessment and imaging
Evidence of anorectal malformation	Refer to **paediatric surgery service**
Evidence of possible underlying motility disorder (e.g.: Hirschsprung's disease)	Refer to **paediatric surgery service**
Constipation as part of a global syndrome	Ensure enrolment in appropriate **specialist clinic or support system**
Treatment failure, despite adequate doses of correct medication & good compliance to firstline treatment	Refer to **secondary level care**

When referral is undertaken it is essential that previous strategies that have been attempted are clearly communicated to limit repeating steps that have already be attempted.

Management guidance at primary care:

Patients with simple constipation, no red flags and no palpable faecaloma, should be managed at the primary health care level. These patients will usually respond well to appropriate dietary changes and simple stool softeners.

Firstline treatment is a combination of behavioural modification, dietary advice and simple medications outlined below:

Behavioural Modification

- Allow adequate time for stooling every day (20 – 30 minutes), after a meal to take advantage of the gastrocolic reflex
- Educate parents about withholding behaviours and encourage them to remind and regularly encourage their child to stool
- Encourage parents to avoid scolding
- Suggest 'star' or 'rewards' chart (NO SWEETS as rewards please)
- Encourage regular exercise

Dietary advice

The goal of dietary advice is to counsel caregivers regarding the content of a healthy, balanced childhood diet with adequate sources of fibre and minimal processed foods.

Common pitfalls:

- 'Filling up on liquids' – children may be drinking vast quantities of cow's milks and/or juice and eating relatively little as a result
- 'Empty calories' – children may be filling up on highly processed, low fibre foods that have very little nutritional value, such as crisps, sweets & refined cereals.

<u>Infants <6 months old</u>

- Infants in this age category should only drink breast milk or formula milk
- No cow's milk, water, or juice should be drunk at this stage
- The volume ingested should be 120 – 150ml/kg/day

- Formula should be mixed according to package instructions
    - Care givers should not add extra powder to make the baby feel fuller
    - Care givers should not add less powder to save on costs
- Care givers may start weaning to solids at around 6 months of age (usually when the infant is sitting confidently with support)

Infants 6 – 12 months old

- At 6 months, solids will likely have been introduced
- A variety of solids can be introduced at once, to expose the infant to multiple flavours & textures
- Usually care-givers start with one meal a day & gradually increase this to 3 meals/day at 10 months & 5 small meals per day at a year
- The infant will still be heavily dependent on formula or breast milk at this stage
- Small volumes of water in a sippy cup can be offered with each meal
- Cow's milk & juice should not be given

Children >1 year old

- Sugar should be used sparingly and not between mealtimes
- By this stage, the child should be eating 5 small meals a day with a variety of food items. Children have small stomachs & therefore have to eat small meals more often
- Water with every meal & whenever requested
- 500ml dairy/day
- Seriously avoid all juice and cold drinks

Meal composition: the daily intake should consist of a combination of the following

Starch

- Encourage: high fibre, unprocessed starches (brown bread, high-fibre cereals, bran, brown rice and potatoes or starchy veg with skins on)
- Discourage: low fibre, highly processed starches (white bread, refined cereals, chips and sweets etc)

Fruit & vegetables

- 3– 5 servings per day
- A mixture of green, yellow, orange and red.
- 'As raw as possible' as over cooking techniques deplete these items of many of their natural nutrients

Protein intake daily

- Vegetable protein should be eaten at least twice a week: chickpeas, lentils, beans, soya
- Animal protein: red meat, fish, chicken, eggs

Medications

Clinical scenario	Hard stools	Pain +/- blood on stooling with a visible fissure
Medication type	Stool softeners or fibre	Topical chemical sphincter relaxation
Medication names	**Lactulose**, **Sorbitol**	**Isosorbide mononitrate** paste

Details and dosing	0.5 – 1 ml/kg/dose daily (escalate to BD as needed)	1 mg/kg in 10 ml of remicaine jelly or Vaseline. Apply a small amount to the anus after meals
Mechanism of action	Non absorbable sugars with osmotic pull of fluid into bowel lumen to soften stool	Smooth muscle relaxation
Side effects	Loose stools and gas bloating with abdominal cramping	Headaches
Comments	Start on a small dose and explain to the patients to increase every 48-72 hrs until the stool is the consistency of a rotten banana. If the patient can afford to buy **Polyethylene glycol (Movicol)** use that as first line instead (start with a half sachet daily and escalate to 2 full sachets daily as required in a stepwise manner)	Considered using crushed **nifedipine tablets** instead of isosorbide mononitrate if headaches occur (10mg/kg in 10 ml of ointment)

We do not advise the use of glycerine suppositories in children beyond infancy as the effect is limited. They can be useful in patients under 1 year old with a short history

Liquid paraffin can be used for a short episode of constipation but should NOT be used as chronic management of constipation in children. This is because liquid paraffin is known to cause malabsorption when used for longer than a few days in children.

Parental Counselling

Duration of therapy[4]

- Continuation of stool softeners is recommended for at least one month after symptoms resolve completely
- Parents can be counselled that their child will probably require therapy for at least as long as the symptoms were present, and probably for a month or two extra
- Once symptoms are well controlled, softener can be weaned.

Concerns about medication[4]

- Dependency'
  Many parents are concerned that their children will become 'dependent' on medication for regular stooling. They can be advised that the medications are not absorbed and simply facilitate good stool consistency. Once a good diet and appropriate behaviour changes are established, they will likely no longer be needed.

- Medication 'not working'
  Parents may say that they see no results with the medication. In this case, compliance and dosing needs to be evaluated, and the importance of consistently using medication every day must be reinforced.

Concerns about 'psychological problems' and 'naughtiness'

- Many parents will voice concerns that the constipation is evidence of a psychological or behavioural problem
- A thorough history should be taken & every effort should be made by the attending clinician to exclude the possibility that there are significant psychological stressors at school or at home
- The child should also be screened for any developmental delay or abnormality
- In the absence of obvious psychological stressors or developmental delays or abnormalities, functional constipation is not an independent indicator that a child is psychologically abnormal, or has abnormal behavioural problems
- Parents should be encouraged not to scold their children for having accidents or struggling to pass stool, & should rather try to remain calm & supportive

Toilet training[5]

- Very often, as part of a consultation about constipation, parents of young children will complain that their child 'refuses' to toilet train, or perceive the child's ongoing stooling in the nappy as a form of incontinence secondary to the constipation
- It is important to remind parents that there is significant variation when it comes to the age at which children can go to the toilet independently
- Most children will toilet train between the ages of 2 & 3 but not all.
- This timing may be affected by many factors, such as a new baby in the family, divorce, death, moving homes etc.
- If there are no red flags that toilet training is pathologically delayed, parents should be reassured and encouraged to support their children

Long-term prognosis[4]

- The management of constipation is likely to be a lifelong process
- Most children will have symptom resolution by the time they are 8 years old, however, about half of patients who have been successfully treated will have one or more relapses, & some patients will have symptoms that persist into adulthood

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