Bowel Management Program for Children with Fecal Incontinence

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Definitions

• Paris Consensus on Childhood Constipation (PACCT, 2004)
• Fecal incontinence
  – passage of stools in an inappropriate place
  – Organic incontinence
    • resulting from neurologic damage or anal sphincter abnormalities
  – Functional incontinence
    • constipation-associated fecal incontinence
    • non-retentive fecal incontinence.
Definitions

• *Encopresis*
  – first introduced by Weissenberg in 1926 (*kopros* = stool in Greek), meaning the loss of stool in underwear as the fecal equivalent of *enuresis*.

• *Soiling*
  – involuntary passage of small amount of stools, resulting in staining of underwear.

• The two terms often used indistinguishably and can sometimes cause confusion.

Epidemiology

• 5.6 to 38% of school children
• Constipation
• Urinary incontinence
• Associated with pre-existing anorectal or spinal conditions
  – Hirschsprung’s disease
  – Anorectal malformation
  – Spina bifida
Clinical Features

- *Is the fecal incontinence due to organic or functional cause?*
  - Hirschsprung’s disease
  - Anorectal malformation
  - Spina bifida

Clinical Features

- *Is the fecal incontinence related to constipation?*
  - 95% of fecal incontinence in children was associated with constipation.
  - 18.3% of constipating children suffered from fecal incontinence, whereas only 0.3% of non-constipated children had fecal incontinence.
Clinical Features

• Functional non-retentive fecal incontinence (FNRNI)
  – an entity defined in Rome II criteria such that fecal retention is absent in the incontinent patient.
  – it accounts for only 3% to 21% of children with fecal incontinence

• In most cases, successful management of constipation can cure fecal incontinence.

History & Physical Examinations

• Functional constipation (Rome III criteria), 2 of the below items
  – (1) two or fewer defecations in 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 and hard bowel movements;
  – (5) presence of a large fecal mass in the rectum; and
  – (6) history of large diameter stools that may obstruct the toilet.
History & Physical Examinations

- History for any anorectal or spinal abnormalities
- Type of operations and any post-operative bowel management programs performed
- Co-existing urinary incontinence
- Sacral dimple and other cutaneous markers
- Lower extremities neurological deficit

History & Physical Examinations

- Per-rectal examination
  - Inspection for soiling buttock & underpants
  - Anal fissure, sentinel piles
  - Anal position
  - Anal stenosis / anastomotic stricture
  - Anal tone with voluntary contraction
  - Size of rectum
  - Stool impaction and consistency

- Stool inspection
Stool Inspection

Preliminary Investigations

• The daily bowel diary
Preliminary Investigations

- The continence score
  - Kelly score
  - Rintala score

Radiological Investigations

- AXR
  - assess the presence of fecal retention and megacolon

- Lumbosacral spine
  - lumbosacral spine defect may associate with underlying occult spinal dysraphism

- Contrast enema
Radiological Investigations

• USG rectum
  – median rectal crescent size in children with constipation is significantly wider than that of normal children

• MRI spine and pelvis
  – defines the pelvic muscle architecture and the anatomy of anus
  – in occult spinal dysraphism

Radiological Investigations

• Colonic transit study
  – Technetium 99m calcium phytate colloid in milk
Anorectal Manometry

Treatment: Education

• To develop the rapport with the patients and parents
• They must not be guilty of fecal soiling
Treatment: Dietary fiber

- For incontinence associated with constipation
- 0.5g/Kg/day
- (Age+5)g/day
- In children with FNRNI associated with watery or loose stool, a constipating diet should be advised

Treatment: Toilet training

- The patient is instructed to have a designate time to go to toilet for defecation.
- It is more physiological to teach them to have defecation after meal.
- The children should focus on defecation only without any distraction.
Treatment: Laxatives

- Soften stool and have a positive effect on bowel motility.
- Useful adjunctive treatment in patients with fecal incontinence associated with constipation or fecal retention.
- In children with FNRFI and those of organic incontinence not associated with constipation, laxatives may aggregate fecal soiling and should be avoided.

Treatment: Laxatives

- Bulk or hydrophilic laxatives such as psyllium
- Osmotic laxatives such as lactulose
- Low dose Polyethylene glycol (PEG)
  - Transpeg
  - Forlax
Treatment: Loperamide

- An opioid receptor agonist used as an anti-diarrheal agent.
- There is some evidence that it can increase anal sphincter pressure that contributes to better sphincter function.
- Useful to control the fecal incontinence in patients with neurological or anorectal abnormalities.

Treatment: Enema

- To maintain the patient “dry and clean” socially
- The dose and frequency of application of enema should be individualized
Treatment: Enema

- Right dose
- Right position

Treatment: Antegrade colonic enema (ACE)

- Construction of a valve mechanism between the appendix and caecum and placement of appendix conduit to the abdominal wall or umbilicus
Pelvic Muscle Training

• Electrical stimulation of pelvic floor muscle together with biofeedback exercise may improve the strength of anal sphincter mechanism and help maintain bowel continence in children with anorectal malformation after surgery.

Pelvic Muscle Training

• Active pelvic contraction with visual feedback

Myoexorciser 1000
Biofeedback System
- (VERIME, USA)
Pelvic Muscle Training

• Low frequency electrical stimulation device (Neurotrac ETS, Verity Medical, UK)
  – Whole muscle complex
  – Passive electro-stimulation

Pelvic Muscle Training

• 6 months training in Department of Physiotherapy
• 6 months home-based training

• Cases recruited from March 2001 to September 2007 = 33
• Cases excluded from program = 4
• Cases completed the program = 22
Overall bowel function

Improved Rintala score post treatment

Wilcoxon signed ranks test
p = 0.005 (at 6 mo)
p = 0.002 (at 12 mo)

Pelvic muscle strength

Greater mean EMG voltage post treatment

Wilcoxon signed ranks test
p < 0.0001 (at 6 mo)
p < 0.0001 (at 12 mo)
Squeeze anal sphincter pressure

- 9 patients had anorectal manometry performed
- Mean increase in squeeze anal sphincter pressure by 33.7 mmHg (p=0.021) at end of program

Intersphincteric botulinum toxin injection

- A potent neurotoxin that inhibits acetylcholinesterase release from nerve terminal endings, resulting in muscle flaccid paresis that lasts for about 3 to 6 months
- Used as an agent for chemical sphincterotomy for children with severe constipation and retentive fecal incontinence
Conclusions

• The causes of fecal incontinence are multi-factorial.

• It is essential to know whether the incontinence is associated with constipation and other organic causes.

• There is no single treatment protocol for every patient.

• Multi-disciplinary approach with liaison with specialty nurses, dietitians and physiotherapists is essential.

End

Questions & Comments