IMPACT OF FUNCTIONAL CONSTIPATION ON PSYCHOSOCIAL FUNCTIONs OF CHILDREN

Thesis

Submitted for Partial Fulfillment of Master Degree

In Pediatrics

By

Mariam Salah Eldeen Mohammed

M.B., B.Ch. (2008)

Post graduate institute of childhood studies

Ain Shams University

Under Supervision of

Prof. / Hamed Ahmed ALKhayat

Professor of Pediatrics

Faculty of Medicine

Ain-Shams University

Prof./ Medhat Hassan Shehata

Professor of Pediatrics

Post graduate institute of childhood studies

Ain-Shams University

Dr./ Shaymaa Maher Deif Allah

Lecturer of Pediatrics

Faculty of Medicine– Ain-Shams University

Post graduate institute of childhood studies

Ain Shams University

2015

INTRODUCTION

Constipation is a childhood defecation disorder, which is defined as difficulty or delay in the passage of stools with frequency less than three times /week , this condition persist for more than two weeks in duration ***(Di Lorenzo, et al 2004).***Functional constipation (FC) is one of the common diseases among children ***(Wang et al, 2013)*** with prevalence in general population ranging from 0.7% to 29.6% (***Van den Berg et al., 2006)***.

In general pediatric practice, 3% of patients are referred for symptoms of functional constipation ***(Loening-Baucke, 1993)***, whereas in specific pediatric gastroenterology clinic; 25% to 45% of patients are referred for evaluation and treatment of functional defecation disorders(***Benningu et al.,*** *2004)*.

The etiology of functional constipation has only been speculated due to its complex nature. One of the leading hypotheses is of stool withholding after experiences of painful or fearful defecation (***Marieke, et al 2010***).

Another is general public misconceptions or dissatisfaction on the constipation management which might have contributed to a reluctance to seek

a professional care, only using home remedy, and incompliance with a treatment regimen (***Wang et al., 2013***).

Even though constipation can be resolved using multi-disciplinary approaches ***(Kawamura, et al 2001).***

Infrequent defecation and fecal incontinence are the most prominent features of childhood constipation and strongly interfere with family life. Furthermore, children with constipation experience fear of painful defecation which leads to stool withholding behavior ***(Noh ,et al 2010).***Functional constipation in children is often the result of repeated attempts of voluntary withholding of feces ***(Wang et al, 2013).***

Abnormal defecation dynamics or pelvic dyssynergia has been reported in 63% of children with chronic constipation. Progressive fecal accumulation in the rectum eventually leads to pelvic floor muscle fatigue and anal sphincter poor competence leading to fecal incontinence ***(Binningu et al, 2004 and Van den Berg et al., 2006)*** .

The hallmark symptoms of constipation is infrequent defecation (less than 3 times /weak), which is often painful. Unrecognized or inadequately treated constipation can lead to significant abdominal pain, appetite suppression, fecal incontinence, perineal

infection or cellulitis, fissures, fistulae or tags, on top of pain which is existing in 33% of cases as nonspecific abdominal pain and painful defecations in up to 68% of cases***(Bongers et al, 2010)***.

The prognosis of the condition on the long run is variable, about 50% of children with chronic constipation are symptoms relieved after a year and 65%-70% after two years ,with much higher relief rates in motivated families that adhere to treatment regimens About 34%-37% remain constipated 3-12 years after treatment and about 1/3 of constipated children continue to have constipation in to adulthood despite treatment ***(Nalons et al, 1991)*** . Families often report to health care providers that this problem has taken over their lives***(Marieke et al,2010).***

Behavioral problems are common in children with constipation The patient appears quiet, withdrawn, embarrassed and angry, with low self esteem, social isolation and family disruption ***(Bongers et al, 2009)***. Several studies show an association between successful treatment and reduction of behavioral problems.

AIM OF THE STUDY

Importance of the Study:

Children with Functional constipation are liable for several physical and behavioral developmental problems. Our study target is to detect early these problems and refer the patient for early treatment to get better quality of life for those children and their families.

Aim of the study:

Our study aimed at exploring the effect of functional constipation on the quality of life of children, and child behavioral chick list in order to consider managing those important aspects during treating those children.

Hypothesis:

We hypothesized that functional constipation could have a negative effect on the quality life of children and their Child Behavioral Chick List scores of child.

Chapter 1

Functional Constipation

Definition;

Constipation is defined variably, but involves infrequent, difficult, painful or incomplete evacuation of hard stools. The term ‘functional constipation’ describes all children in whom constipation does not have an organic etiology. Functional constipation is commonly the result of withholding of feces in a child who wants to avoid painful defecation. Frequently, children with constipation will also experience recurrent episodes of fecal incontinence due to overflow caused by fecal impaction (known as encopresis) ***(Jae ,et al 2011) and (Locke, et al 1998)***.

Etiology and risk factors

Habitual constipation as a result of regular stool holding should be distinguished from other types of constipation, which are associated with organic disorders. Although this type of constipation is the most common, the diagnosis can be made only after excluding recognized organic causes ***(Noh et al, 2009) (Nalons et al ,1991).***

Constipation in children may be caused by a change in diet and fluid intake, during toilet training or a deviation from usual toileting routines, or avoidance of

bowel movements because of pain such as anal irritation, fissures (small tears in the skin), or rashes. Other factors can play a role in causing painful bowel movements, such as changes in daily routine, stressful events, or postponing using the toilet when the urge is felt ***(Nalons et al, 1991)*** .

Chronic stool holding by toddlers is usually related with a history of painful defecation (most often between 18 months and 36 months of age). At that time young children learn voluntary control through the process of toilet/potty training, and the passage of large, hard stools that painfully stretch the anus may frighten them. Other important risk factors include the following: chronic constipation during infancy, prematurity, improper psychological development, positive family history, lowered muscle tone, male sex (especially in early infancy and at pre-school age), cow's milk intolerance, inadequate nutrition (diet poor in fiber, rich in fats and sugars, sweet drinks), low level of physical activity, and, finally, psychological and behavioral factors. ***(Drossman et al 2006)***.

The psycho-emotional background of functional constipation is usually associated with fears and phobias due to changes in surroundings and routine. Common examples are starting/changing nursery, toilet/potty training, family problems, or, in extreme

situations, sexual abuse. There is also a group of children ignoring the urge to have a bowel movement because their attention is focused on other “extremely interesting activities” ***(Agarwal et al, 2011).***

Vicious circle:

The most frequent cause of habitual constipation in children is definitely painful bowel movement [5]. As a result, a child holds on to the stool, trying to ignore the desire to empty the bowels even for a few days. This, in turn, leads to a greater reabsorption of water through the rectal mucosa and hardening of the stool making the next bowel movement more painful. Children who are habitually constipated get into unusual positions. For example, toddlers arch their back, stand on their tiptoes, and wriggle or fidget, or they may squat, hiding in a corner. The vicious circle mechanism evokes and escalates additional non-specific symptoms such as abdominal distension, excessive postprandial fullness, loss of appetite, encopresis, blood and mucus in the stool, nausea, vomiting, and abnormally slow weight gain. First and foremost, this mechanism generates and enhances the fear of defecation***(Wang et al., 2013).***

Diagnosis

The Rome II pediatric criteria for functional gastrointestinal disorders were established in 1999, and were to be used as a diagnostic aid and to provide categorization for research purposes***(Noh et al, 2010)***. The updated Rome III criteria for functional constipation were published in 2006 ***(Borowitz et al, 2003).***

Rome III diagnostic criteria for functional constipation (criteria fulfilled at least once per week for at least two months before diagnosis)***(Halder et al 2007):***

Must include two or more of the following in a child with a developmental age of at least four years, with insufficient criteria for the diagnosis of irritable bowel syndrome:

1. Two or fewer defecations in the toilet per week.
2. At least one 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 or history of large diameter stools that may obstruct the toilet.

Evaluation

The evaluation process includes three classic stages: interview, physical examination, and medical tests. At each stage it is important to remember differential diagnosis; functional vs organic ***(Jae et al, 2011)***.

The interview should include all of the possible risk factors, detailed symptoms and behavioral changes, developmental history, and psycho-social determinants such as social and sanitary conditions, and any problems in nursery/preschool or in the family ***(Kaur , et al, 2002)***.

physical examination should include the assessment of psychological and physical development (using centile rank), and examination of the perianal area, which may show an abnormally placed external sphincter, possible anal fistulas/fissures, inflammation, and signs indicating sexual abuse. The presence of abdominal distension, tenderness, and often palpable faecal masses in the abdominal examination is another important clinical feature that should not be overlooked. The rectal examination should assess anal tone, size of rectum, and the amount and consistency of stool within the rectum. In contrast to organic causes, functional

constipation is correlated with a strong fear of rectal examination ***(Di Lorenzo et al 2004).***

Additionally, some patients require neurological consultation, including functional assessment of the lower part of the spine***(Loening-Bauke V,2007).***

Investigations:

Medical tests are most often ordered for patients with clinical suggestions of an organic disease (based on interview and physical examination) or for children who fail to respond to the conventional therapy ***(Matthew E Falagas,2008).***

1-Plain abdominal X-ray was the imaging procedure for children who vigorously resist rectal examination. However, low correlation between clinical and radiological appearance made abdominal X-ray less useful ***(Kaur et al ,2002)***.

2-Abdominal Ultrasound ***(Thomas et al 2000).***
3-Colonic transit studies allow physicians to distinguish between functional constipation with normal peristalsis, and constipation with delayed colonic transit and abnormal segmental contractions ***(Reuchlin .et al 2005).***

4-Ano-rectal manometry: The most important benefit of this examination is the ability to confirm/rule out Hirschsprung's disease by measuring the parameters of recto-anal inhibitory reflex (RAIR). The RAIR is a transient relaxant response of the internal anal sphincter to the rectal distension that normally occurs but is absent in Hirschsprung's disease. Some authors, however, indicate that RAIR cannot fully confirm normal autonomic innervation of the colon and, for this reason, biopsy is sometimes necessary***(George et al 2010).***

Other medical tests include the following: colonic manometry, electromyography of the pelvic floor muscles, defecography, and dynamic nuclear magnetic resonance (NMR) ***(Bongers et al,2009).***

Table(I): Key components of history-taking to diagnose constipation ***(George et al 2010):***

Key component	**Potential findings in a child**
Stool pattern	-Fewer than three complete stool per week . -Over flow soiling :very loose very smelly stool which pass without sensation. -Large ,infrequent stool that can block the toilet.
Symptoms associated with defecation	-poor appetite that improves with passage of large stool. -recurrent abdominal pain with passage of stool. -Straining . -Anal pain.
History	-Previous episodes of constipation. -Previous or current anal fissure. -Painful bowel movement and bleeding associated with hard stool.

Table (II). Key components of physical examination to diagnose idiopathic constipation *(Matthew et al,2008)*.

Key component	**Findings and diagnostic clues that indicate idiopathic constipation**	**„Red flag" findings and Diagnostic clues that indicate an underlying disorder or condition: Notidiopathicconstipation**
Inspection of perianal area: appearance,position,patency	Normal appearance of anus and surrounding area**.**	Abnormal;appearance, position,patencyof anus eg.fissures,anterior displacementPotulous anus
Abdominal examination	Soft abdomen .flat or distended that can be explained .	Gross abdominal distension
Spine/lumbosacralregion/gluteal examination	NO abnormality detected	Asymmetry,skin discoloration, hairy patch,lipoma….etc,.
Lower limb neuromuscular examination including tone and strength	All are normal	-Lower limb deformity -Abnormal neuromuscular signs.
Lower limb neuromuscular examination.	Intact reflexes.	Abnormal reflexes.

Inform the child or young person and his or her parents or carers of a positive diagnosis of idiopathic constipation and also that underlying causes have been excluded by the history and/or physical examination. Reassure them that there is asuitable treatment for idiopathic constipation but that it may take several months for the condition to be resolved.

Management

The length of treatment varies, and it may take from a few months up to as long as 4 years ***(Kaur et al ,2002)*** That is why, in order to be effective, the therapy requires extreme discipline and well-coordinated activities of all "members of the team": the little patient, parents/guardians, and physician. In many cases the intervention of a consulting psychiatrist and psychologist is necessary for success, and sometimes, when serious emotional and family problems develop, even constant psychological, psychiatric, and counseling care is recommended. The process of management includes non-pharmacological and pharmacological interventions***(Bongers et al,,2009).***

When functional constipation is finally recognized, a specific management program must be individually adapted for each patient to enable its implementation according to the patient's needs and preferences ***(Van den Berg et al, 2006)***.

Usually such a program consists of six steps:

The evacuation of faeces/faecal stones accumulated in the rectum (when necessary), a change in dietary habits, toilet/potty training, behavioral treatment, family support, and pharmacotherapy***(Mrieke ,et al 2010).***