PREVALENCE OF FUNCTIONAL GASTROINTESTINAL DISORDERS AMONG SCHOOL AGE CHILDREN IN SHARQIA GOVERNORATE

Thesis

Submitted for Partial Fulfillment of M. Sc. degree in Pediatrics

By

Samah Mohamed Mohamed Mahmoud Badawy
M.B.B.CH(2008)

Under supervision of

Prof. Dr. Ahmed Mohammed Hamdy
Professor of Pediatrics
Faculty of Medicine, Ain Shams University

Dr. Ahmed Tohamy Ahmed Ibrahim
Lecturer of Pediatrics
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
2017

First thanks to **ALLAH** *to whom I relate any success in achieving any work in my life.*

I wish to express my deepest thanks, gratitude and appreciation to ***Prof. Dr. Ahmed Mohammed Hamdy****, Professor of Pediatrics Faculty of Medicine, Ain Shams University for his meticulous supervision, kind guidance, valuable instructions and generous help.*

Special thanks are due to ***Dr. Ahmed Tohamy Ahmed Ibrahim,*** *Lecturer of Pediatrics Faculty of Medicine, Ain Shams University for his sincere efforts, fruitful encouragement.*

Lastly I wish to thank all children who agreed to participate in this study, wishing them a healthy life.

Samah Mohamed Badawy

Dedication

*Finally, I want to dedicate this work to the soul of my dear **Father**, my beloved **Mother** and my **Husband** and all the members of my family and my dear brother because of their patience and support.*

سورة البقرة الآية: ٣٢

List of Contents

List of Abbreviations

Abb.	Full term
AM	*Abdominal migraine*
ARS	*Adolescent rumination syndrome*
CAPS	*Centrally mediated abdominal pain syndrome*
CBT	*Cognitive behavioral therapy*
CMA	*Cow milk allergy*
CNS	*Central nervous system*
CVS	*Cyclic vomiting syndrome*
ESPGHN	*The European society for pediatric Gastroenterology, Hepatology and Nutrition*
FABS	*Functional abdominal pain syndrome*
FAP	*Functional abdominal pain*
FD	*Functional constipation*
FGIDs	*Functional gastrointestinal disorders*
FI	*Fecal incontinence*
FNRFI	*Function of non-retentive fecal incontinence*
GI	*Gastrointestinal*
HRQOL	*Health related quality of life*
IBS	*Irritable bowel syndrome*
MSG	*Mono sodium glutamate*
Mt DNA	*Mitochondrial deoxyribonucleic acid*
NASPGHN	*North American society for pediatric Gastroenterology, Hepatology and Nutrition*
NICE	*National institute for health and clinical excellence*
RAP	*Recurrent abdominal pain*
SSRIs	*Selective serotonin reuptake inhibitors*
TCAS	*Tri cyclic antidepressant*

List of Tables

List of Tables cont…

List of Figures

Prevalence of Functional Gastrointestinal Disorders among School Age Children in Sharqia Governorate

Ahmed M. Hamdy, Ahmed T. A. Ibrahim, and Samah M. M. M. Badawy[3]
Pediatrics Department, Faculty of Medicine,
Ain Shams University, Cairo Egypt

ABSTRACT

Objectives: Functional gastrointestinal (GI) and motility disorders are the most common GI disorders in the general population. Estimates vary, but about 1 in 4 people or more have one of these disorders. The conditions account for about 40% of GI problems seen by doctors and therapists.

Aim of the Work: The study was done to measure the frequency of functional gastrointestinal disorders (FGIDs) among of a sample of Egyptian children. The second aim was to explore the effect of functional gastrointestinal disorder on the quality of life in children and their families.

Patients and Methods: The present cross sectional study was conducted on 711 Egyptian children with age varying between 4-18 years. They were selected among primary and preparatory school in Sharqia governorate. After the approval of the pediatric board at the children's hospital Ain Shams University, an informed consent was obtained from the parents or caregivers then each child was subjected to the following:

I- Clinical history taking with special emphasis on: personal data, assessment of socioeconomic standard of family, assessment of presence of FGIDs using an Arabic translation of "Rome III diagnostic Questionnaire for pediatric functional GI disorders"

II- Statistical analysis data were tabulated by spss

Results: The prevalence of FGIDs among Egyptian children in sharquia governorate was found 30.4%; Irritable bowel syndrome was the most prevalent FGIDs12.1%;8.7% upper type-3.4% lower type, followed by Functional constipation was 8.9%, abdominal migraine was 5.8% then functional dyspepsia was 4.8% other disorders functional abdominal pain syndrome was 3.7%; 2.1% upper type and 1.5% lower one, 2.8% had cyclic vomiting syndrome was 2.8%, aerophagia was 2.7%, non retentive fecal incontinence was1.8%. and adolescent rumination syndrome was 1.8%. In this study, 59.9% of affected children had one type of FGIDs, 36.4% had two types, and 3.7% had three types. There was a high association between FGIDs and quality of life comparing between children with FGIDs and children without.

Conclusion: FGIDs are common among school age children living in Sharqia aged 4 to 18 years. Present of FGIDs adversely affect the HRQOL of children and their families. Awareness of family physicians and general pediatricians about this FGIDs in children for early detection is highly recommended.

Keywords: Functional gastro intestinal disorders - Irritable bowel syndrome - Functional constipation - Abdominal migraine – functional dyspepsia – children.

INTRODUCTION

Functional gastrointestinal (GI) and motility disorders are the most common GI disorders in the general population. Estimates vary, but about 1 in 4 people or more have one of these disorders. The conditions account for about 40% of GI problems seen by doctors and therapists ***(Parkman et al., 2006; Talley et al., 2008).***

Functional GI disorders are disorders of gut–brain interaction. It is a group of disorders classified by GI symptoms related to any combination of the following: motility disturbance, visceral hypersensitivity, altered mucosal and immune function, altered gut microbiota, and altered central nervous system (CNS) processing ***(Drossman and Hasler, 2016).***

The term "functional" is generally applied to disorders where the body's normal activities in terms of the movement of the intestines, the sensitivity of the nerves of the intestines, or the way in which the brain controls some of these functions is impaired. However, there are no structural abnormalities that can be seen by endoscopy, x-ray, or blood tests. Thus it is identified by the characteristics of the symptoms and infrequently, when needed, limited tests ***(Drossman and Hasler, 2016).***

Functional gastrointestinal disorders (FGIDs) are conditions that include a combination of symptoms that are

chronic or recurrent and are not explained entirely with current structural or biochemical abnormalities.

These disorders are subcategorized by Rome criteria based on the symptoms present. Rome III criteria classify FGIDs associated with abdominal pain into the subtypes: functional dyspepsia, irritable bowel syndrome (IBS), abdominal migraine, functional abdominal pain, and functional abdominal pain syndrome. The differences in pathophysiology, clinical presentation, and therapeutic interventions mandate appropriate classification of these disorders.

Apley and Naish defined RAP as a pain syndrome consisting of at least three episodes of abdominal pain over a period of not less than 3 months and severe enough to affect activities. The majority of children experiencing this type of pain had no identifiable organic causes (functional disorder) ***(Rasquin et al., 2006; Lee et al., 2004; Apley and Naish, 1958; Helgeland et al., 2009).***

The Prevalence of functional GIT disorder in the world ranged widely from 1.6% to 41.2%. Higher pooled prevalence rates were reported in South America (16.8%) and Asia (16.5%) compared to Europe (10.5%). And a higher pooled prevalence was reported when using the Rome III criteria (16.4%, 95% CI 13.5-19.4). Functional abdominal pain disorders are shown to occur significantly more in girls ***(Chitkara et al., 2005; Spee et al., 2013).***

The Effect of functional GIT disorder on children and teenagers include a variety of digestive disorders that occur in children from birth to 18-years-old. The disorders may interfere with daily functioning and include symptoms such as pain, nausea, vomiting, diarrhea, constipation, problems in the passage of food or feces, or a combination of symptoms. Some of these disorders are rare and others quite common. Functional GI disorders may constitute at least 40–50% of visits to a pediatric gastroenterologist, with the majority of disorders associated with abdominal pain. Three common functional GI disorders infant regurgitation, functional fecal retention, and functional dyspepsia (recurrent abdominal pain) each affect about 10% of the pediatric population.

The effect of functional GIT disorder on family as suffering from the cost to deal with that, making Psychological stress to the mothers and affecting on the ability of learning ***(Hyams et al., 1996).***

General Health related quality of life (HRQOL) in functional gastrointestinal disorder is significantly impacted in patients with FGIDs, such as functional dyspepsia and IBS. The impaired HRQOL has been particularly demonstrated in patients with moderate to severe disease seen in referral settings. With regard to treatment response, HRQOL appears to improve in responders, or correlates with symptom improvement. In addition, studies have demonstrated the importance and predictive value of psychosocial factors and

symptoms related to visceral perception and chronic stress in HRQOL in patients with organic and functional gastrointestinal disorders. They further support the conceptual model that early adverse life events influence later psychosocial experiences, physiological functioning and susceptibility to the development of IBS and other FGIDs ***(El-Serag, 2003).***

The functional GIT disorders are classified first by age range, with separate conditions recognized in infants/toddlers to those recognized in children/adolescents aged 4–18 years within each age group.

It occurs most commonly between ages 4 and 14 years. Some studies show within this age range peaks in incidence at 4-6 years and at 7-12 years. Girls are probably affected more often than boys. Incidence appears similar in different socio-economic groups, although low socio-economic status is cited by some as a factor increasing incidence. Recently, an association between obesity and recurrent abdominal pain has been reported. Diet may also play a part. A recent study reported an inverse correlation between fruit consumption and recurrent abdominal pain. It is apparent that many factors are involved, consistent with the concept of a biopsychosocial model for illness ***(Hyman et al., 2006; Rasquin et al., 2006).***

Saps M said that Cow's-milk allergy is a risk factor for the development of Functional gastrointestinal disorders (FGIDs) in children. Functional gastrointestinal disorders

(FGIDs) are common in children. Their pathogenesis remains unknown and is most likely multifactorial. We hypothesized that noninfectious causes of inflammation affecting the gastrointestinal (GI) tract early in life, such as cow's-milk allergy (CMA), can predispose to the development of FGIDs later in childhood ***(Saps et al., 2011).***

Distress is a risk factor of Functional Gastrointestinal Disorders in Childhood one infant in 4 manifests with abundant crying, fussing, or colic cry and is brought for medical evaluation during the first months of life. Concomitantly, excessive antigen uptake and bacterial translocation ensue across the immature gut barrier. Not surprisingly, infant crying has been related to food allergy and aberrant gut microbiota composition and these have, in turn, been linked to functional gastrointestinal disorders (FGIDs). We hypothesized that colic crying is associated with FGIDs later in childhood ***(Alvarez and St James-Roberts, 1996; Walker et al., 1998).***