The Relationship Between Obsessive-Compulsive Disorders and Childhood Chronic Functional Constipation

Pedram Ataee[1], Hadi Badiee[2], Soleiman Mohammadzadeh[3], Borhan Moradveisi[2], Daem Roshani[4], Rasoul Nasiri[5], Alireza Eskandarifar[6], Armen Malekiantaghi[7], Kambiz Eftekhari[7,8]

[1] Liver and Digestive Research Center, Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj, Iran

[2] Department of Pediatrics, Kurdistan University of Medical Sciences, Sanandaj, Iran

[3] Department of Psychiatry, Neuroscience Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

[4] Social Determinates of Health Research Center, Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj, Iran

[5] Lung Disease and Allergy Research Center, Cellular and Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

[6] Department of Pediatrics, Faculty of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran

[7] Department of Pediatric, Bahrami Children's Hospital, Tehran University of Medical Sciences, Tehran, Iran

[8] Pediatric Gastroenterology and Hepatology Research Center, Tehran University of Medical Sciences, Tehran, Iran

Received: 21 Jan. 2021; Accepted: 08 Aug. 2021

Abstract- Chronic constipation is one of the most common problems in children. It can cause anxiety and psychological problems in patients and parents. The purpose of this study was to investigate the relationship between obsessive-compulsive disorders (OCD) in children with chronic functional constipation. This is a case-control study performed at the gastroenterology clinic of Besat Hospital Sanandaj for one year. The children aged 7-14-year-old with chronic functional constipation were selected as a case group, and the healthy children were recruited as a control group, who referred for growth control. Then, the Maudsley questionnaire for obsessive-compulsive disorders was completed by a trained assistant. With this questionnaire, the presence or absence of OCD and its type can be determined. Forty-three children were selected as the case group and sixty-seven children as the control group. The mean age of the case and control group was 9.3±1.5 and 8.8±1.6 years, respectively. Based on the results, there was a significant difference between the groups in terms of checking, cleaning, slowness, doubting, and total obsessive score (P<0.05). Therefore, all five types of obsessive-compulsive disorder in the case group were greater than the control group. Obsessive-compulsive disorders were more common in children with functional constipation, and the total obsessive score in these children than the healthy children was a significant difference.

Acta Med Iran 2021;59(8):499-503.

Keywords: Children; Chronic functional constipation; Obsessive-compulsive disorders

Introduction

Chronic constipation is defined as delayed bowel movements, stiffness in stool consistency, and/or difficulty in defecation that persists for two weeks or more. It is one of the most common problems in children, with 25% of all referrals to pediatric gastroenterologists. Constipation is generally classified into two categories: Organic and Non-Organic (Functional) (1,2). The functional type of constipation is very common; it can be seen in more than 90% of cases (1,3,4). Constipation is considered functional if there is no anatomical or pathophysiology disorder (5). The diagnostic criteria for chronic functional constipation in children according to

Corresponding Author: K. Eftekhari
Department of Pediatric, Bahrami Children's Hospital, Tehran University of Medical Sciences, Tehran, Iran
Tel: +98 2173013000, Fax: +98 2177568809, E-mail address: dr_k_eftekhary@yahoo.com

Rome III criteria (6) includes the presence of at least two of the following occurring weekly for the last 1-2 months: less than two defecations per week, more than one episode of fecal incontinence per week, history of large stool retention, history of severe or painful bowel movements, presence of bulk stool mass in the rectum, history of toilet block due to the bulky stools and history of a specific condition or withholding secondary to voluntary fecal retention. Chronic constipation can lead to abdominal pain, urinary retention, psychological problems, and anxiety for the child and parents (1). These psychological problems may be manifested with fear and obsessive behaviors, and these problems can exacerbate constipation (7). Obsessive-compulsive disorder (OCD) is characterized by repetitive thoughts or compulsive behaviors that cause disturbances and interfere with the person's routine leading to serious impairment in his work (8). This disorder is also common in children and adolescents (1-4%) (9). The main characteristic of OCD is unwanted, repetitive, and intrusive thoughts (obsessive) as well as repetitive and annoying behaviors (compulsion) (10). The patient is often unable to ignore or refrain from doing so (10). The (obsessions) involve thoughts, images, impulses that have come to mind, but there is no ability to control them (11). The common compulsion in children includes an obsession with repetition, washing, checking, arranging, and sorting (12). Based on the recognition of the prevalence of psychiatric disorders in children with chronic constipation, it can provide a suitable strategy (including psychiatric counseling or pharmacological treatment) for better treatment and control (13). The studies on the assessment of OCD in children with functional constipation are limited, and their results are controversial. Therefore, we decided to evaluate the connection between obsessive-compulsive disorders in children with chronic functional constipation.

Materials and Methods

This study was a case-control performed at the gastroenterology clinic of Besat Hospital in Sanandaj (Iran) for one year (from 2015 until 2016). Children aged 7-14-year-old with chronic functional constipation were enrolled. The sample size was determined with 95% confidence and 90% power, with 25% accuracy. Forty-three children aged 7-14-year-old with chronic constipation were selected as the case group. All of them had chronic functional constipation diagnosed by a pediatric gastroenterologist and based on the ROME III criteria (6). Sixty-seven children were selected as the control group among healthy children referred for growth control. These children did not have constipation and were matched with the case group in terms of age and sex. At first, they were informed on the type and stages of the study, and, if agreed, written consent was obtained from parents. Their demographic characteristics were recorded in a separate questionnaire by a pediatric assistant. Then the Maudsley questionnaire (14) for obsessive-compulsive disorders was completed by a trained assistant. The presence or absence of OCD and their type was determined. This questionnaire was prepared by Hodgson and Rachman in order to investigate the type and field of OCD (15). It evaluated four types of obsessive problems: checking, cleaning, slowness, and doubting. Finally, using a simple scoring method, in addition to the total obsessive score, four sub-scores were obtained for checking, cleaning, slowness, and doubting. The reliability and validity of the Maudsley questionnaire have been confirmed in several clinical trials (16,17). In general, this questionnaire is an appropriate tool for assessing the etiology and prognosis of various types of obsessive-compulsive complaints. If one person responds positively to half of the questions and negative to half the other, he/she is considered obsessive. The range of Maudsley's total score is between 0 and 30 (17). The study protocol was approved by the ethics committee of Kurdistan University of Medical Sciences (Approval Number: IR.MUK.REC.1395.15).

Inclusion criteria

Children aged 7 to 14 years with a history of chronic constipation without the organic cause, which, according to ROME III criteria, were diagnosed as functional constipation.

Exclusion criteria

children with growth retardation and failure to thrive (FTT), history of constipation 48 hours after birth, presence of obstructive symptoms such as severe abdominal distension and vomiting, history of neurological disorders, presence of electrolyte disturbances, history of drug consumption including antidepressants, anticonvulsants, anticholinergics and analgesics containing codeine or opioids and finally, the absence of ROME III criteria of functional constipation.

Statistical analysis

The results of the study were analyzed by SPSS software version 20. The frequency of obsessive-compulsive disorder was reported in both groups using descriptive statistics. For comparison, both abundances in

the groups were used independent T-test. In the study, the *P* of less than 0.05 was considered statistically significant.

Results

In the study, one hundred and ten children were enrolled in two groups. Of these, 43 children were selected as the case group and 67 children as the control group. In the case group, 39.5% (n=17) were male and 60.5% (n=26) were female and in the control group, 46.3% (n=31) and 53.7% (n=36) respectively. The mean age of the case and control group was 9.3±1.5 and 8.8±1.6 years, respectively. Therefore there was no significant difference between the groups (*P*=0.412). The mean weight in the case and control group was 28.70±6.80 and 27.4±7.4 kg (29.5-53 kg). The duration of the disease in the case group was 4±3 years (1-11 years). In the case group, all of the children (n=43) were treated with Polyethylene Glycol (PEG: Pidrolax). Table 1 depicts the comparison of the total obsessive scores and four sub-scores for checking, cleaning, slowness, and doubting and their significance. Based on the results, there was a significant difference between the groups in terms of checking, cleaning, slowness, doubting, and total obsessive score [respectively (*P*=0.009), (*P*=0.000), (*P*=0.000), (*P*=0.000) and (*P*=0.000)] But there was no statistically significant relationship between the groups in terms of age and weight [respectively (*P*=0.149) and (*P*=0.341)].

Table 1. The Comparison of the Total Obsessive Scores and four sub-scores for Checking, Cleaning, Slowness, and Doubting in Two Groups

OCD¥	Groups	Number	Mean	Standard Deviation	*P*
Obsessive	**Case**	38	7.2632	4.48833	0.000
	Control	64	2.7188	2.74567	
Checking	**Case**	42	1.0476	1.39603	0.009
	Control	67	0.3881	1.16717	
Cleaning	**Case**	42	3.1905	1.81105	0.000
	Control	66	1.1667	1.83624	
Slowness	**Case**	42	1.7143	1.41913	0.000
	Control	66	0.5455	0.89755	
Doubting	**Case**	42	2.6429	1.62032	0.000
	Control	66	1.3485	0.75432	

¥. Obsessive-Compulsive Disorder

Discussion

Chronic functional constipation has a significant impact on the quality of life of children and their families (18). This disease can cause fear, obsessive behaviors and exacerbate constipation. Different studies have shown that obsessive-compulsive disorders, depression, and distress have a direct relationship with functional constipation disorders (19-24). In this study, the prevalence of females in the case and control groups was 60.5% and 53.7%, respectively. This difference may be due to the fact that females show symptoms of illness more than males. Pare *et al*., found that the prevalence of constipation in females was twice as in males (25). The results of studies in the USA, Taiwan, Hong Kong, and Ecuador, as well as our study, confirmed the high prevalence of constipation in girls (26-29). Contrary to our study, 56% of the patients were males in the study performed by Karami and colleagues in Iran (3). The definitive cause of the high prevalence of functional constipation in girls is not precisely defined (30). In our study, the mean age and weight of the case group were 9.3±1.3 years and 28.7±6.8 kg, respectively. In the study of Nakhaei (31), the mean age of patients was 45.6 months (3.8 years), and in the study of Abedini (32) was 6.47 years (unlike our study). According to our results, there was a statistically significant difference between the groups in terms of the checking, cleaning, slowness, doubting, and total obsessive score. In 2014, Salehi and colleagues studied the frequency of the obsessive-compulsive disorder in children with functional constipation. Their study, like ours, showed a significant difference between the groups, and the frequency of OCD was more common in children with functional constipation (33). Purdon and coworkers showed that low levels of mood and anxiety have a negative effect on bowel movements (34). North (1995) showed that there was a significant relationship between constipation and OCD only in women. In the male group, this relationship has not been proven. Because of this, the hypothesis of the relationship between both disorders was not confirmed (13). This study was conducted on adults, and its results were different from our study.

One of our limitations was the small number of

similar studies, which allowed comparisons between the scores obtained in the two groups. Another limitation was the Maudsley questionnaire for OCD. In this questionnaire, there are only two questions about the thoughts (obsessive). It also does not measure the severity of the disabilities and the severity of their problems. However, this questionnaire has the ability to differentiate between patients with obsessive-compulsive disorder from patients with other mental disabilities. Finally, we suggest that a study is conducted on patients with chronic constipation and obsessive-compulsive disorder, evaluating the effect of obsessive-compulsive therapy on the course of constipation. In our opinion, treatment for this disorder in children with resistant constipation can help them to recover.

The end result is that the Obsessive-compulsive syndrome was more common in children with functional constipation, and the total obsessive score and four sub-scores for checking, cleaning, slowness, and doubting in these children was significantly different than the healthy children.

Acknowledgments

We thank all the children and their parents who volunteered their time and information. Also, we appreciate the cooperation of Dr. Diana Diaz in helping write this article.

References

1. Kuizenga-Wessel S, Benninga MA. Functional Constipation and Incontinence (chapter 11). In: Wyllie R, Hyams J, Kay M. Pediatric gastrointestinal and liver disease 2016. 5th ed. Philadelphia: Saunders Elsevier, 2016:124-36.
2. Torabi Z, Amiraslani S, Diaz D, Ahmadiafshar A, Eftekhari K. Comparison of Paraffin versus Polyethylene Glycol (PEG) in Children with Chronic Functional Constipation. Int J Pediatr 2017;5:5843-50.
3. Chase JW, Homsy Y, Siggaard C, Sit F, Bower WF. Functional constipation in children. J Urol 2004;171:2641-3.
4. Karami H, Mousavi A, Khademloo M, Soleimani F. Etiology of chronic constipation and related causes in children referred to Boo-Ali Sina Hospital in Sari between 2006 and 2007. J Birjand Univ Med Sci 2009;16:51-6.
5. Corazziari E. Definition and epidemiology of functional gastrointestinal disorders. Best Pract Res Clin Gastroenterol 2004;18:613-31.
6. Rasquin A, Di Lorenzo C, Forbes D, Guiraldes E, Hyams JS, Staiano A, et al. Childhood functional gastrointestinal disorders: child/adolescent. Gastroenterology 2006;130:1527-37.
7. Andrews CN, Storr M. The pathophysiology of chronic constipation. Can J Gastroenterol 2011;25:16B-21.
8. Vieira J, Ramalho E Silva F. Quality of Life in Children with Obsessive-Compulsive Disorder. Acta Med Port 2016;29:549-55.
9. Yousefichaijan P, Salehi B, Khosrobeigi A, Hajirahimi M, Rafiei M, Taherahmadi H. Prevalence of Obsessive-Compulsive Disorder in Pediatric Patients with the Daytime Frequency Syndrome of Childhood or Pollakiuria. Arak Med Univ J 2014;17: 80-6.
10. Geller DA, Biederman J, Faraone S, Agranat A, Cradock K, Hagermoser L, et al. Developmental aspects of obsessive compulsive disorder: findings in children, adolescents, and adults. J Nerv Ment Dis 2001;189:471-7.
11. Clure Mc, Tone EB, Pine DS. Clinical features of the anexiety disorders. In: Sadock BJ, Sadock VA, Ruiz P, eds. Kaplan & Sadock's Comprehensive Textbook of Psychiatry. 9th ed. Philadelphia: Lippincott Williams & Wilkins; 2009:1844-53.
12. Boileau B. A review of obsessive-compulsive disorder in children and adolescents. Dialogues clin Neurosci 2011;13:401-11.
13. North CS, Napier M, Alpers DH, Spitznagel EL. Complaints of constipation in obsessive-compulsive disorder. Ann clin psychiatry 1995;7:65-70.
14. Ahmadi BA, Baghiyan Kulehmarz MJ, Yazdanpanah MA, Ragabi M. The effectiveness of group mindfulness – Based cognitive Therapy on obsessive-compulsive disorder, metacognition beliefs and rumination. Clin Psycho Stud 2015;5:133-60.
15. Shafran R, Ralph J, Tallis F. Obsessive-compulsive symptoms and the family. Bull Menninger Clin 1995;59:472-9.
16. Woody SR, Steketee G, Chambless DL. Reliability and validity of the Yale-Brown obsessive-compulsive scale. Behav Res Ther 1995;33:597-605.
17. Sánchez-Meca J, López-Pina JA, López-López JA, Marín-Martínez F, Rosa-Alcázar AI, Gómez-Conesa A. The Maudsley Obsessive-Compulsive Inventory: A reliability generalization meta-analysis. Int J Clin Health Psychol 2011;11:473-93.
18. Karami H, Yazdani J, Khalili N, Pourasghar M. The Relationship between Functional Constipation and Emotional, Social, Physical, and Educational Functioning of Children. Iran J Psychiatry Behav Sci 2017;11:e7127.
19. Fergus TA, Bardeen JR. Emotion regulation and obsessive–compulsive symptoms: A further examination of associations. J Obsessive Compuls Relat Disord

2014;3:243-8.

20. Robinson LJ, Freeston MH. Emotion and internal experience in obsessive compulsive disorder: reviewing the role of alexithymia, anxiety sensitivity and distress tolerance. Clin Psychol Rev 2014;34:256-71.
21. Smith AH, Wetterneck CT, Hart JM, Short MB, Björgvinsson T. Differences in obsessional beliefs and emotion appraisal in obsessive compulsive symptom presentation. J Obsessive Compuls and Relat Disord 2012;1:54-61.
22. Stein DJ, Fineberg NA, Bienvenu OJ, Denys D, Lochner C, Nestadt G, et al. Should OCD be classified as an anxiety disorder in DSM-V? Depress Anxiety 2010;27:495-506.
23. Torres AR, Prince MJ, Bebbington PE, Bhugra D, Brugha TS, Farrel M, et al. Obsessive compulsive disorder: prevalence, comorbidity, impact and help seeking in the British National Psychiatric Morbidity Survey of 2000. Am J Psychiatr 2006;163:1978-85.
24. Markarian Y, Larson MJ, Aldea MA, Baldwin SA, Good D, Berkelion A, et al. Multiple pathways to functional impairment in obsessive–compulsive disorder. Clin Psychol Rev 2010;30:78-88.
25. Pare P, Ferrazzi S, Thompson WG, Irvine EJ, Rance L. An epidemiological survey of constipation in canada: definitions, rates, demographics, and predictors of health care seeking. Am J Gastroenterol 2001;96:3130-7.
26. Tam YH, Li AM, So HK, Shit KY, Pang KK, Wong YS, et al. Socioenvironmental factors associated with constipation in Hong Kong children and Rome III criteria. J Pediatr Gastroenterol Nutr 2012;55:56-61.
27. Wald ER, Di Lorenzo C, Cipriani L, Colborn DK, Burgers R, Wald A. Bowel habits and toilet training in a diverse population of children. J Pediatr Gastroenterol Nutr 2009;48:294-8.
28. Játiva E, Velasco-Benítez CA, Koppen IJ, Ja´tiva-Cabezas Z, Saps M. Prevalence of functional gastrointestinal disorders in School children in Ecuador. J Pediatr Gastroenterol Nutr 2016;63:25-28.
29. Wu TC, Chen LK, Pan WH, Tang RB, Hwang SJ, Wu L, et al. Constipation in Taiwan elementary school students: a nationwide survey. J Chin Med Assoc 2011;74:57-61.
30. Mugie SM, Benninga MA, Di Lorenzo C. Epidemiology of constipation in children and adults: a systematic review. Best Pract Res Clin Gastroenterol 2011;25:3-18.
31. Nakhaei S, Mohammadzadeh Y, Behmadi R, Ebrahimi Nasab O, Asgarzadeh L. Frequency determination of functional constipation in children with and without gastroesophageal reflux. Tehran Univ Med J 2015;72:761-6.
32. Abedini M, Ataiee P, Afkhamzadeh A, Seifmanesh M, Sedaghat B. The Effect of Probiotics on the Treatment of Functional Constipation in Children of 4–12 Years of Age. J Isfahan Med Sch 2015;33:2448-54.
33. Hashemi SM, Salehi B, Yousefi P. Comparison of frequency of obsessive-compulsive disorder in children with functional constipation and control group referring to Pediatric Clinic of Amir Kabir Hospital in 2014. Unpublished doctoral dissertation [dissetation]. Arak, Iran: Arak University of Medical Sciences., 2016.
34. Purdon C. Empirical investigations of thought suppression in OCD. J Behav Ther Exp Psychiatry2004;35:121-36.