



Relationship of functional constipation and anal-retentive behavior features

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ABSTRACT

Objectives: Constipation is the most commonly seen defecation problem and related with several environmental factors. Learning defecation is learned in the childhood anal period in which anal characteristic features appear. Problems in the anal period of childhood may affect not only the characters but also the defecation function. We aimed to evaluate the relationship between constipation and anal characteristic features of participants with functional constipation.

Material and Methods: Patients with functional constipation were included in the study according to the ROME III criteria. Patients with irritable bowel disease, slow transit constipation, outlet obstruction constipation, malignancy, and psychiatric diseases were excluded from the study. Patients filled out the Personality Belief Questionnaire, Hospital Anxiety and Depression Scale, and Obsessive Belief Questionnaire. The results were compared with healthy individuals.

Results: A total of 47 patients with functional constipation were included in the study. The avoidant, obsessive-compulsive, antisocial, narcissistic, and paranoid personality beliefs were found to be higher in patients with constipation than in the control group. Perfectionism/certainty, importance and control, and hospital anxiety scores were found to be higher in patients with constipation than in the control group.

Conclusion: Constipation may be related to several factors, such as socioeconomic environment, emotional stress, age, and diet, among others. Here we found that anal-retentive behavior features are prominent in functional constipation. Biofeedback, which can be regarded as psychotherapy of defecation control, can be used for treatment.

Keywords: Anal-retentive, biofeedback, constipation, childhood, personality disorders

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INTRODUCTION

Defecation is a complex mechanism composed of the sympathetic and parasympathetic systems, sacral spinal cord reflexes, normal anorectal sensation, and voluntary control of the external sphincters (1). Impairments of this process are called defecation disorders and generally associated with constipation. The term "Functional Defecation Disorders" (FDDs) has been preferred to describe constipation that is associated with anorectal dysfunction, according to the recent consensus (Rome III) (2). Constipation is the etiology of most of the benign anorectal diseases, such as hemorrhoid and chronic anal fissure. Although anatomical and functional factors related with senility and sex have been addressed for the etiology, constipation is also a common problem in children (3-5).

In addition to the anatomical factors, psychological factors also play a role (6, 7). The anal stage is the period of controlling defecation in children. In this period, children learn how to hold their stool and defecate. Children learn the important part of defecation (i.e., voluntary control of the sphincter) during this period. Defecation control is the interaction, communication, and exertion of power by children against their environment. Children experience several conflicts in this period. These conflicts may lead to anal-retentive personality, which includes willfulness, stinginess, excessive thoroughness, and excessive tidiness (7, 8). Early toilet training, excessive parent-child conflict, irrational fears, and anxieties around toileting can also lead to constipation in children (9).

We sought to evaluate the possible existence of anal-retentive personality features in patients with FDD.

MATERIAL AND METHODS

This is a retrospective descriptive study. The study was performed at Kocaeli University University Department of General Surgery. The local ethical committee of Kocaeli University (KOÜKAEK 2015/49) approved the study. Inclusion criteria comprised patients who had been diagnosed with FDD according to the ROME III criteria at the Department of Gastroenterology and who were referred to the general surgery outpatient clinic between February 2015 and March 2016 (2, 10). Gastroenterology reports were reviewed to ascertain whether or not patients had been evaluated by anal manometry and colon transit time measurement, in order to rule out slow transit constipation and outlet dysfunction. Patients who

had previous known psychiatric, oncologic, inflammatory, and neurological diseases were excluded from the study. Patients who had been admitted to the general surgery outpatient department were examined for hemorrhoid or anal fissure related with constipation. Chronic anal fissure is diagnosed as fissure in the anal canal that is present for ≥ 3 months and is indurated, fibrotic, has anal skin tags, and is located in the midline. Patients who had undergone surgical treatment for hemorrhoids or anal fissure were not included in the study. Patients with constipation were divided into two groups: those with (i.e., constipation with disease) and those without benign anorectal disease (i.e., constipation without disease). The control group was composed of healthy individuals who had no previous gastrointestinal or psychiatric diseases. Demographic data included age, sex, body weight, and height. Informed consent was obtained from all of the participants of the study.

Personality Belief Questionnaire—Short Form

The Personality Belief Questionnaire—Short Form (PBQ-SF; Turkish version) is composed of questions that ask about an individual's basic beliefs about himself, other people, and the world (10). In its initial configuration, the PBQ has several questions that assessed each personality disorder found in the Diagnostic and Statistical Manual of Mental Disorders (DSM) (i.e., avoidant, dependent, passive-aggressive, obsessive-compulsive, antisocial, narcissistic, histrionic, paranoid, schizoid/schizotypal, and borderline). In each question, participants scored the statement from 0 to 4 according to their beliefs. The validity and reliability of the Turkish version of the questionnaire were performed by Taymur et al. (11).

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression (HAD) is composed of 14 questions that evaluate the depression and the anxiety of the participant. The aim of the scale is not to diagnose but instead to define the risk groups for anxiety and depression. HAD was developed by Zigmond et al., and the validity and reliability were evaluated (12). The validity and reliability of the Turkish version of the questionnaire were performed by Aydemir (13).

Obsessive Beliefs Questionnaire

The Obsessive Beliefs Questionnaire (OBQ) was developed by the Obsessive-Compulsive Cognitions Working Group and is composed of 44 questions scored on a 7-point Likert scale (14). The subgroups of OBQ included Responsibility/Threat Estimation, Perfectionism/Certainty, and Importance and Control Thoughts. The validity and reliability of the Turkish version of the questionnaire were performed by Boysan et al. (15).

Statistical Analysis

All statistical analysis was performed using the Statistical Package for the Social Sciences version 17.0 (SPSS; IBM Corp., CA, USA). A

p-value < 0.05 was accepted as statistically significant. Data were expressed as mean \pm SE. The distribution of parametric data was evaluated by Kolmogorov-Smirnov test. Statistical data of the three groups with normal distribution were compared with the ANOVA post hoc Tukey test. The Kruskal-Wallis test was used for the comparison of data with non-normal distribution. Categorical comparison was performed by chi-square test. Subgroup comparisons of OBQ were performed by Mann-Whitney U test.

RESULTS

During a 12-month period, a total of 47 patients with FDD were included in the study. A total of 23 individuals were included in the study as the control group. Table 1 shows the demographic results. There is no statistical difference between the groups by age, sex, weight, and height.

Table 2 shows the OBQ and HAD scale results. There is no statistical difference between the groups for the HAD depression scale and the OBQ Responsibility/Threat estimation subgroups ($p=0.108$ and $p=0.131$, respectively). The Perfectionism/Certainty score of patients with constipation with disease and without disease was significantly higher than that of the control group ($p=0.037$ and $p=0.009$, respectively). There were no significant differences between the patients with constipation with and without disease ($p=0.479$). The Importance and Control Thoughts score of patients with constipation with and without disease was significantly higher than that of the control group ($p=0.018$ and $p=0.04$, respectively). There were no significant differences between the patients with constipation with and without disease ($p=0.893$). The HAD score was significantly higher in patients with constipation with disease than in the control group ($p=0.014$). However, the difference in anxiety scores between the patients with constipation without disease and the control group was not significant ($p=0.217$).

Table 3 shows the PBQ-SF subgroup comparisons between the groups. The obsessive-compulsive type beliefs were more common in patients with constipation with and without disease than in the control group ($p=0.028$). Avoidant and narcissistic beliefs were more common in patients with constipation with disease than in the control group. Antisocial and paranoid beliefs were more common in patients with constipation with disease than in the control group.

DISCUSSION

Our study showed that anal-retentive characteristic features that are related to the period of defecation control are significantly higher in patients with constipation than in healthy people. Constipation is one of the most common gastrointestinal disorders seen by gastroenterologists and primary care physicians. The prevalence of the disease in adults older than

Table 1. Demographic data of patients

	Constipation with disease (n=31)	Constipation without disease (n=16)	Control (n=16)	P
Sex (male/female)	12/19	11/5	10/13	0.135*
Age (years)	39.3 \pm 13.8	37.4 \pm 13.2	44.3 \pm 10.3	0.197*
Height (cm)	164.1 \pm 17.8	169.5 \pm 8.2	167.8 \pm 10.5	0.396*
Weight (kg)	72.6 \pm 16.2	72.0 \pm 14.3	80.7 \pm 19.7	0.169*

*ANOVA test is used for the comparison of the mean age, height, and weight of the groups. Kruskal-Wallis test is used to compare the ratio of sexes between the groups

60 years is 33%, whereas the overall prevalence among adults of all ages is approximately 16% (16). Constipation reduces the quality of life and poses a large economic burden, with more than \$820 million spent on laxatives per year (17). Chronic constipation is defined as infrequent bowel movements and myriad symptoms (hard stool, straining, feeling of incomplete evacuation, sensation of fecal obstruction, and digitation for defecation) with less than three bowel movements per week for at least 3 of prior 12 months. FDD includes primary constipation and has different features than slow transit constipation and obstructed constipation. In our study, FDD related with constipation is diagnosed using the Rome III criteria and excludes outlet dysfunction and slow transit constipation (10).

Our study showed that patients with constipation have much more anal-retentive behavior features than healthy subjects. Anal-retentive behavior features are developed during the anal stage of children between the ages of 1 and 3 years (18). The anal-retentive personality has an excessive amount of libido fixated on the pleasures discovered during the period of toilet

training. Control of defecation is a kind of libido that leads to anal-retentive personality during the time when superego is formed (18). Freud suggested that children in the anal stage of development regard the release of their feces as a gift to the parent—a gift that can be given or withheld. Toilet withholding is the most common response seen in that period. Anal-retentive children hold their feces in a miserly fashion, releasing waste only when strongly encouraged or rewarded (19). These characteristics are supposedly present in anally fixated adults who demand that others offer them devotion and sacrifice. Anal-retentive adults hoard love and affection while commonly withholding their own affection from others. Another type of an anal-retentive person is an individual who seeks to obsessively control his or her environment and the people in his or her life, often by being stingy or miserly (19). Fixation at this stage can lead to a highly moralistic and overly controlled personality style.

It has been reported that voluntary holding in healthy people can remarkably delay defecation and, at the same time, slow

Table 2. Comparison of obsessive beliefs, anxiety, and depression among the study groups

	Constipation with disease (n=31)*	Constipation without disease (n=16)	Control (n=23)	P
OBQ (Responsibility/Threat Estimation)	58.6±14.4	65.2±17.9	54.0±18.6	0.131*
OBQ* (Perfectionism/Certainty)	62.7±16.7 ^a	65.0±20.4 ^β	51.0±20.5	0.02* ^a p=0.037, ^β p=0.009
OBQ (Importance and Control Thoughts)	39.6±12.7 ^a	38.5±11.2 ^β	31.4±11.8	0.036* (0.018-0.04-0.893) ^a p=0.004, ^β p=0.018
HAD Scale	7.0±3.5	7.4±4.9	5.0±3.7	0.108*
HAD Scale	8.6±4.9 ^a	7.3±5.1 ^β	5.4±2.7	0.016* (0.014-0.677-0.217) ^a p=0.014, ^β p=0.67

*Kruskal–Wallis test is used for the comparison of the groups. Mann–Whitney U test is used to compare the two groups

^aComparison between patients with constipation with disease and control group

^βComparison between patients with constipation without disease and control group

OBQ: Obsessive Beliefs Questionnaire; HAD: Hospital Anxiety and Depression

Datas are presented as mean±SD

Table 3. Comparison of personality beliefs among the study groups

Personality Belief Questionnaire, subgroups	Constipation with disease (n=31)	Constipation without disease (n=16)	Control (n=23)	P
Avoidant*	13.8±5.7 ^a	12.1±3.8	10.0±5.0	0.029* (^a p=0.022)
Dependent*	8.8±5.7	9.1±5.4	6.4±4.0	0.176*
Passive-aggressive*	12.6±4.7	12.1±3.8	11.4±6.1	0.720*
Obsessive-compulsive*	15.4±4.5 ^a	15.6±5.4 ^β	8.0±4.4	<0.001* (^a p<0.001, ^β p<0.001)
Antisocial**	10.9±6.0 ^a	9.0±4.3	6.4±4.9	0.019* (ap=0.008)
Narcissistic*	10.1±5.6 ^a	9.6±4.3	6.7±3.5	0.03* (ap=0.028)
Histrionic*	8.1±6.1	7.8±3.8	5.3±3.8	0.112*
Schizoid/schizotypal*	12.7±6.3	11.3±5.4	9.4±6.7	0.178*
Paranoid**	12.3±6.1 ^a	7.8±3.3	8.0±5.8	0.011* (^a p=0.011)
Borderline*	9.5±6.3	8.9±3.8	6.5±3.9	0.099*

*ANOVA post hoc Tukey test is used for comparison

**Kruskal–Wallis test is used for comparison

^aComparison between patients with constipation with disease and control group

^βComparison between patients with constipation without disease and control group

Datas are presented as mean±SD

transit through the ascending colon and rectosigmoid tract (20). This type of mechanism often produces constipation in children and can continue into adulthood as an acquired illness behavior (21). One-third of patients with functional constipation had reported constipation since childhood, whereas others developed constipation during adulthood (22). The onset of symptoms during childhood suggests that at least one-third of patients with functional constipation may have never learned the art of proper defecation or acquired faulty habits during toilet training (23). Early toilet training, excessive parent-child conflict, and irrational fears during the anal stage may result in functional constipation (9). In addition to these withholding features, psychosocial experiences, physiological functioning, or susceptibility to developing a functional gastrointestinal disorders, including functional constipation, is seen (24). It has been shown that physiological stress, anxiety, socioenvironmental factors, and genetic predisposition may also contribute to the development of constipation (24, 25). Psychological distress is associated with pelvic floor tension and increased extrinsic nerve supply and rectal mucosal blood flow to the gut (26). The mechanism in emotional stress and constipation results in the alteration of bowel habits via the brain-gut axis.

The prevalence of obsessive beliefs, such as Perfectionism/Certainty and Importance and Control Thoughts, in patients with constipation is significantly higher than that in healthy controls. Anxiety about making a mistake, precise and excessive desire to finish a task, strict and inflexible attitudes toward beliefs, and uncomfortable feelings about uncertain events are higher in patients with constipation. Higher rates of obsessive beliefs in patients with constipation demonstrate that these patients attach importance to compulsive thoughts, and that they need much more control for these thoughts (11). The desire to maintain control is a coping mechanism for individuals, and uncontrolled life events are predictive of psychological stress (24). Previous studies have shown a high prevalence of emotional distress including anxiety, depression, and social dysfunction in patients with functional constipation (24). In the present study, we not only showed high anxiety and social dysfunction rates but also found that other personality disorders are associated with anal characteristic features. It has been shown that stress may act via the enteric nervous system to inhibit colonic motility and thus prolong colonic transit (24). However, in our study, we included patients with normal transit time.

The Personality Belief Scale was prepared according to the personality disorders in DSM IV (18). Avoidant, obsessive-compulsive, paranoid, antisocial, and narcissistic beliefs are more common in patients with constipation than in healthy subjects. The most significant difference between the constipated and control groups was obsessive beliefs. Obsessive personality features overlap with anal characteristic features. Individuals with anal characteristic features are rigorous, prim, perfectionist, extremely niggling, and dislike uncertainty. There is limited information about obsessive-compulsive disorder and obsessive-compulsive personality disorder among patients with constipation. Thus, we thought that the subject was worth investigating. The present study also found that paranoid personality including skeptical and insecure features and thoughts about the control of other people

and the desire to find secret meanings in events was much more common in patients with constipation with diseases. Furthermore, antisocial personality (including difficulty coping with societal rules and undeveloped superego) and narcissistic personality (including exaggerated appraisal of one's personal features) were much more common in patients with constipation with diseases. However, only obsessive-compulsive personality beliefs were significantly higher in both patients with constipation with and without disease. This shows that obsessive-compulsive features are an important part of anal-retentive behavior features. On the other hand, some features are more prominent in patients with constipation and disease than in patients with constipation only. This may be due to the severity of anal-retentive behavior features. Unfortunately, the limitation of the present study was that it was unable to describe the relationship between the severity of the disease and the anal-retentive behavior features. Anal characteristic features are not the disease to be treated, but when personality disorders are observed, the first line of therapy may be psychotherapy.

Biofeedback is a learning strategy derived from psychological learning theory (27). The basis of the use of this treatment is feedback signals from various autonomic systems that shape the behavior of the organ in a desired direction. Biofeedback is used for several gastrointestinal diseases including constipation, incontinence, and gastric motility, among others. Biofeedback treatment in constipation is much more effective for improving muscle coordination control than for treating slow transit time constipation (27). Taken together, biofeedback can be regarded as a kind of psychotherapy for defecation control. Patients with functional constipation and anal characteristic features may benefit from both biofeedback and psychotherapy.

CONCLUSION

Anal-retentive behavior features are more prominent in patients with constipation. Anal-retentive behavior features are developed during the anal period in which defecation is learned, and there might be a relationship between these two entities. Biofeedback treatment is one of the modalities for both anal-retentive behavior features and functional constipation.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of Kocaeli University School of Medicine.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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