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Investigation of alexithymia in patients with functional dyspepsia

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Abstract

Objective: In psychometric test scales, patients with a diagnosis of FD have higher scores for anxiety, depression, and somatization than those without. Alexithymia is difficulty in expressing emotions and is closely related to psychosomatic diseases. In this study, we aimed to investigate the presence of alexithymia in patients with functional dyspepsia.

Materials and methods: This study was conducted prospectively. Laboratory tests, ultrasonography and endoscopy were performed on the patients. TAS 20 questionnaire was applied to the patient and control groups. Statistical analyses were performed using SPPS v.27.0.

Results: A total of 80 subjects, 39 patients diagnosed with FD and 41 controls, were included in the study. The TAS-20 scale scores of the patient group were ≥61 in 13 (33.3%), 50-61 in 14 (35.9%), and below 50 in 12 (30.8%), with a mean of 56.2±11.3. In the control group, 1 (2.4%) was ≥61, 10 (24.4%) was between 50-61, 30 (73.2%) was below 50 and the mean was 46.2±5.9($p<0.001$). TAS subscales were also significantly higher in the FD group.

Conclusions: Alexithymic personality structure should always be considered in patients diagnosed with FD. It can be explained to patients that the emotions they cannot express with words and behaviors are expressed in this way through the body. In this way, we believe that patients may give up their obsession with repeated endoscopies with the concern that I have an organic disease, and health care expenditures may be reduced.

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Introduction

Dyspepsia is a term that refers to pain or discomfort in the upper abdomen. It may be due to an organic cause or there may be no organic, systemic or metabolic abnormality. In this case, it is called functional dyspepsia (FD). FD is a cause of significant healthcare expenditure, work absenteeism and reduced quality of life (1-3). It is more common in Western than in Eastern societies, with an estimated prevalence of 29% (4). Although its etiology is unknown despite intensive research, it is thought to be multifactorial (2). One such factor is psychosomatic disorders. In psychometric test scales, patients with a diagnosis of FD have higher scores for anxiety, depression, and somatization than those without (5). Drossman et al. (6) reported that psychosocial structure is important for functional gastrointestinal disorders because of its effect on bowel physiology and regulation of symptom experience. In a questionnaire-based population study in Sweden, those who had anxiety at baseline were about 8 times more likely to develop FD within 10 years than those who did not (7).

Alexithymia is a Greek word meaning "no words for emotions". It is a personality structure characterized by an inadequacy in recognizing, verbally expressing, and expressing emotions according to social norms (8). Unprocessed and unregulated emotions in alexithymic individuals predispose these individuals to mental illnesses such as anxiety and depression (9). It has also been reported to play a role in the pathogenesis of many somatization disorders (10-12). It has been suggested that alexithymic individuals are more sensitive to normal bodily sensations and inappropriately interpret somatic symptoms of emotional arousal (13).

In this study, we aim to provide up-to-date information on the potential alexithymic characteristics of patients with FD and to raise awareness of this issue by comparing alexithymic personality traits between patients with FD and healthy individuals.

Materials and methods

This study was conducted prospectively between January 2022 and July 2022 with the ethical approval of the local clinical research ethics committee, in accordance with the tenets of the Declaration of Helsinki. Informed consent was obtained from all patients. The patient group consisted of patients admitted to the gastroenterology outpatient clinic, and the control group consisted of check-up patients without symptoms.

Exclusion criteria

- ⇨ Structural gastrointestinal disease,
- ⇨ Chronic diseases (gastroenterological, cardiac, pulmonary, neurological, rheumatological, oncological),
- ⇨ Pathological findings on ultrasound that could explain the symptoms,
- ⇨ Known psychiatric illness,
- ⇨ Mental retardation or cognitive impairment,
- ⇨ Use of anxiolytics or antidepressants

Medical history, physical examination, and laboratory tests

All patients enrolled in the study had a detailed medical history, a complete physical examination, and the results were recorded. After at least 8 hours of fasting, venous blood samples were taken for complete blood count and biochemical analysis. A urine sample was collected for complete urinalysis. Biochemical analysis included fasting blood glucose, renal function tests, liver enzymes, amylase, lipase, albumin, protein, serum electrolytes, and C-reactive protein (CRP). Urine was analyzed for protein, glucose, leukocytes, and urinary crystals.

Ultrasonography

All patients underwent upper abdominal ultrasonography (USG) with a 4.5 MHz convex probe (Siemens, Acuson X700 Ultrasounds, Siemens Medical Solutions USA, Inc) by a single gastroenterologist.

Esophagogastroduodenoscopy

Esophagogastroduodenoscopy (EGD) was performed in patients who had no pathology to explain their symptoms after physical examination, laboratory testing, and USG. All patients underwent EGD with Fujifilm EG-760R videogastroscope (Fujifilm Medical Systems inc. Tokyo, Japan) under sedation with midozolam and propofol after at least 8 hours of fasting. Gastric mucosal biopsies were taken from all patients according to the Sydney protocol. The biopsy material was placed in a formaldehyde solution bottle and sent to the pathology laboratory for histopathology and evaluation for the presence of Helicobacter pylori.

Diagnosis of functional dyspepsia

Patients with normal EGD and histopathology without active inflammation or Helicobacterium pylori were diagnosed with functional dyspepsia according to

Rome IV criteria.

Rome IV criteria;

1. One or more of the following

a. Postprandial fullness

b. Early satiety

c. Epigastric pain

d. Epigastric burning

2. There is no evidence of structural disease to explain the symptoms. Upper GI endoscopy should be normal.

Symptoms must have started at least 6 months prior to diagnosis, and diagnostic criteria must have been present for at least 3 months (1).

Toronto alexithymia scale

The Toronto Alexithymia Scale (TAS-20) questionnaire was administered to both the patient and control groups. The Toronto Alexithymia Scale (TAS) is a Likert-type rating scale consisting of twenty questions, scored from 1 to 5 (1=never, 5=always), used to assess the level of alexithymia in an individual. For each question, participants were asked to mark the most appropriate option among "Never," "Rarely," "Sometimes," "Often," and "Always." A high score indicates increased alexithymia. Scores are interpreted as follows: ≤50 points: No alexithymia, 51-60 points: Possible alexithymia, ≥ 61 points: Definite alexithymia (14).

The scale has three subscales: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and External-Oriented Thinking (EOT).

- TAS DIF: The Difficulty Identifying Feelings subscale consists of seven items (1, 3, 6, 7, 9, 13, and 14), defined as difficulty identifying feelings and distinguishing them from bodily sensations that accompany emotional arousal.

- TAS DDF: The Difficulty Describing Feelings subscale consists of five items (items 2, 4, 11, 12, and 17) and is defined as difficulty in communicating emotions to others.

- TAS EOT: The Externally Oriented Thinking consists of eight items (items 5, 8, 10, 15, 16, 18, 19, and 20). The presence of an extroverted cognitive structure is defined as introverted thinking and weak imagination.

Statistical analysis

Statistical analyses were performed using SPPS v.27.0 (SPSS, Chicago, III, USA). While categorical data were expressed as frequencies and percentages, quantitative data were expressed as means and standard deviations. Chi-squared test was used to compare categorical data, and independent t-test and Mann-Whitney U test were used to compare quantitative data. A p value <0.05 was considered significant.

Results

A total of 80 subjects, 39 patients diagnosed with FD and 41 controls, were included in the study. While 31 of the patients were female and 8 were male, 23 of the controls were female and 18 were male. The mean age was 27.6±8.3 years in the patient group and 28.1±6.7 years in the control group. There was no statistically significant difference in age between the groups (p=0.77). Symptoms were mixed in most of the patients and the dominant symptoms were as follows: epigastric pain and burning in 21(54%) patients, postprandial satiety and early satiety in 18(46%) patients. In addition, 14(36%) patients complained of nausea and 5(13%) patients complained of vomiting.

The TAS-20 scale scores of the patient group were ≥61 in 13 (33.3%), 50-61 in 14 (35.9%), and below 50 in 12 (30.8%), with a mean of 56.2±11.3. In the control group, 1 (2.4%) was ≥61, 10 (24.4%) was between 50-61, 30 (73.2%) was below 50 and the mean was 46.2±5.9. When the groups were compared in terms of TAS-20 mean, it was significantly higher in the FD group (p<0.001). When the patient and control groups were evaluated in terms of TAS-20 subscales, TAS-DIF=13.9±4.7, 11.4±2.77 (p=0.005), TAS-DDF=19.3±6.3, 15.6±3.98 (p=0.02), TAS-EOT=22.6±4.66, 19.1±4.02 (p<0.001) (**Table 1**).

Discussion

The main finding of this study was that alexithymia scores were significantly higher in patients with functional dyspepsia than in the control group.

The causes of functional dyspepsia (FD) are heterogeneous and multifactorial. One of these factors is psychosomatic disorders (15-17). It has been reported in the literature that mood disorders and somatization are much higher in patients with functional gastrointestinal disorders compared to the general population (18,19). Alexithymic personality structure is also strongly associated with both mood

Table 1: Comparison of patient and control group parameters

	Functional dyspepsia	Control	p-value
Female / male	31/8	23/18	
Age	27.6±8.3	28.1±6.7	0.77
TAS 20	56.2±11.3	46.2±5.9	**<0.001**
TAS DIF	13.9±4.7	11.4±2.77	**0.005**
TAS DDF	19.3±6.3	15.6±3.98	**0.02**
TAS EOT	22.6±4.66	19.1±4.02	**<0.001**

TAS: Toronto Alexithymia Scale,DIF: Difficulty Identifying Feelings, DDF: Difficulty Describing Feelings, EOT: Externally Oriented Thinking

disorders and somatization (9-12), and many reports have reported an association between functional GI disorders and alexithymic personality structure. Faramarzi et al. (20) compared 30 patients with FD and 30 patients with peptic ulcer disease (PUD) on several psychiatric parameters, including alexithymia. Pairwise comparisons revealed higher total alexithymia and Difficulty Identifying Feelings (DIF) scores in patients with PUD compared to healthy subjects. When FD patients were compared with healthy subjects, DIF, DDF, and total alexithymia scores were higher in the FD group. When FD was compared with PUD, DIF, difficulty describing feelings (DDF), and total alexithymia scores were significantly higher in patients with FD than in patients with PUD. The authors concluded that both alexithymia and other psychiatric disorders were more severe in FD patients compared to PUD patients (20). Portincasa et al. (21) compared 100 patients with irritable bowel syndrome with 100 healthy subjects. They found abnormal scores for alexithymia in 43% of the patient group and only 2% of the healthy subjects. Porcelli et al. (22) reported that alexithymia personality structure was significantly higher in patients with functional gastrointestinal tract disorder (FGID) than in patients with inflammatory bowel disease (66% vs. 38%, respectively). Only 4.5% of healthy individuals had high alexithymia scores. In the same study, patients with higher alexithymia scores reported more severe gastrointestinal symptoms. The authors suggested that this may be a bilateral situation and that severe symptoms may increase alexithymia (22). Jones et al. (23) found that 21% of patients with FD scored higher than the comparison subjects on both the TAS and the Somatosensory Reinforcement Scale. However, only 12% of FD patients had a high level of alexithymia (≥61 points). This result was below other literature. In addition, when evaluated according to subgroups, only DIF was significantly higher (23). Mazehari et al. (12) found that alexithymia scores and gastrointestinal symptoms were significantly higher in patients with FGID compared to healthy controls in their study of 237 individuals. In this study, higher levels of education were associated with a lower risk of alexithymia. The authors suggested that a higher level of education may lead to a greater ability to recognize and define emotions, which may reduce alexithymia (12). This suggests that alexithymia may be a dynamic structure that can change according to conditions, rather than a permanent personality structure. Studies on this topic have reported that alexithymia occurs in some individuals after a physical illness and decreases after the illness resolves (24). In our study, 13 (33.3%) of the FD patients had high alexithymia scores (≥61). Total alexithymia, DIF, DDF, and EOT subscale scores were all significantly higher in patients with FD compared with the control group. Our study was in agreement with the literature.

Although the cause of functional dyspepsia in alexithymic individuals is not well understood, there are clues. In these individuals, the insula, which corresponds to the visceral sensory cortex, is strongly activated by visceral pain (25) or by viewing images of other people in pain (26). This suggests that alexithymic individuals have an exaggerated and inappropriate response to stimuli. Depending on this response, the autonomic nervous system and the hypothalamic-pituitary-adrenal axis, which are physiological stress systems, are stimulated (27,28). In particular, corticotropin-releasing hormone (CRH), which is secreted by the hypothalamus secondary to stress, is thought to be the major and unique mediator of most of the endocrine, behavioral, and

gastrointestinal changes caused by stress (29). CRH can lead to cytokine release in the gastrointestinal system and gastroduodenal dysfunction (30). Kano et al. (31) showed that adrenocorticotropic hormone response to colorectal distension increased in healthy individuals with higher scores on the difficulty in recognizing emotions subscale of the TAS-20 scale. In addition, these stress-induced physiological responses have been shown to affect intestinal functions, including ion and water secretion, intestinal permeability, mucus secretion, and intestinal flora in both human and animal models (32,33).

The main limitation of our study was the relatively small number of cases. The second limitation of our study was that alexithymic structure and symptom change could not be monitored due to the lack of long-term follow-up of the cases.

Conclusions

TAlexithymic personality structure should always be considered in patients diagnosed with FD. Viewing these patients as individuals who cannot adequately express their emotions may allow for a more compassionate approach. It can be explained to patients that the emotions they cannot express with words and behaviors are expressed in this way through the body. Patients can accept this situation more easily because they are not diagnosed as psychiatric patients, which is more difficult to accept. In this way, we believe that patients may give up their obsession with repeated endoscopies with the concern that I have an organic disease, and health care expenditures may be reduced..

Conflict of interest

The authors report no conflict of interest.

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Ethical Approval

The study was approved by the Ethics Committee for Clinical Research of the Konya Medicana Hospital (date:28.01.2022, number:2022/01).

Informed consent

Written informed consent was obtained from all individual participants and/or their gaurdians.

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Peer-review

Externally. Evaluated by independent reviewers working in at least two different institutions appointed by the field editor.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Contributions

Research concept and design: **EA, MA**
Data analysis and interpretation: **EA, MA**
Collection and/or assembly of data: **EA, MA**
Writing the article: **EA, MA**
Critical revision of the article: **EA, MA**
Final approval of the article: **EA, MA**

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