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Alimentary tract

Audit of digestive complaints and psychopathological traits in patients with eating disorders: A prospective study

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ABSTRACT

Background: Esophago-gastrointestinal symptoms are frequently reported by patients with eating disorders. Scanty data exist on the relationship between psychopathological traits and digestive complaints.
Aims: To prospectively analyze (i) prevalence of digestive symptoms; (ii) psychopathological traits; (iii) relationship between symptom scores and psychopathological profiles.
Methods: Psychopathological and digestive symptom questionnaires were completed at baseline, at discharge, at 1 and 6 months' follow-up in 48 consecutive patients (85.4% female, median age, 15 years) hospitalized for eating disorders.
Results: The most frequently reported symptoms were postprandial fullness (96%) and abdominal distention (90%). Pooled esophageal (4; IQR 0–14) and gastrointestinal (34; IQR 19–53) symptoms significantly decreased at 6 months' follow-up (1; IQR 0–3 and 10; IQR 4–34; $p < 0.0001$ and $p < 0.005$, respectively). Pooled gastrointestinal symptoms significantly correlated with hypochondriasis ($r = 0.42$, $p < 0.01$). Both esophageal and gastrointestinal symptoms improved in patients with normal values of hypochondriasis and hysteria scales ($p < 0.05$ and $p < 0.005$, respectively) compared to those with pathological traits.
Conclusions: Digestive symptoms are frequently reported by patients with eating disorders with their expression and outcome being influenced by psychopathological profiles. Hypochondriasis and hysteria traits are predictive factors for symptomatic improvement.

1. Introduction

Eating disorders (ED), i.e. anorexia nervosa, bulimia nervosa and unspecified eating disorders, are characterized by aberrant patterns of eating behavior and weight regulation and, specifically in anorexia nervosa, there is likewise a disturbed perception of body weight and shape [1,2]. Besides physical and laboratory abnormalities, patients with ED often present functional and/or organic gastrointestinal (GI) disorders [3,4], which might be directly or indirectly related to underlying psychopathological abnormalities [5,6]. Digestive symptoms are more commonly observed in patients with anorexia nervosa who display a lack of insight that may lead them to report digestive complaints commonly interpreted by doctors as expression of "somatization" [7,8]. Patients with either anorexia nervosa or bulimia nervosa often report a wide array of GI complaints [9,10] including symptoms suggestive of early satiety, postprandial discomfort [11], constipation, abdominal fullness, acute intestinal occlusion and swollen salivary glands [12,13]. Digestive symptoms may delay the diagnosis of ED as these patients are often referred to gastroenterologists for their complaints and receive medication for the GI tract rather than psychiatric treatments [8,14]. Moreover, psychiatric co-morbidities, including Axis I diagnoses (affective and anxiety disorders) [15] and Axis II personality disturbances (obsessive-compulsive, avoidant and schizoid personalities) [16], can contribute to worsen GI symptoms and often complicate case conceptualization and treatment planning [17]. Studies revealed that in ED patients Minnesota Multiphasic Personality Inventory (MMPI) scales are abnormally high [18] and specific psychological traits, such as somatization, neuroticism and anxiety, predict a high prevalence of functional GI disorders [19]. Recent data report a turnover of functional gastrointestinal disorders after 12 months in patients with ED, with no apparent relationship with eating behaviors, psychological variables or body weight change [20]. However, whether the presence and evolution

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of digestive symptoms are related to psychopathological profiles in ED has not been evaluated.

The present study was designed to prospectively analyze the prevalence of digestive symptoms in ED patients at admission (baseline) to a specialized unit and after 6 months of follow-up from discharge, and to evaluate Minnesota Multiphasic Personality Inventory (MMPI) scales in these patients at baseline. Our secondary aim was to examine the relationship between symptom cumulative scores and modifications, with changes in body mass index (BMI) and MMPI scales. Our prior hypothesis was that digestive complaints in ED patients are influenced, either in their expression or in their outcome, by psychopathological traits.

2. Materials and methods

2.1. Participants

Patients fulfilling the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) criteria for ED were consecutively enrolled in a specialized unit at St. Orsola-Malpighi Hospital of Bologna, Italy and interviewed (see questionnaires) at baseline, at discharge, at 1 month and at 6 months of follow-up. Patients underwent the specific "psycho-nutritional rehabilitation cycle", usually adopted in the ED unit, consisting of: (a) nutritional rehabilitation with supervised meals; (b) bi-weekly individual psychotherapeutic sessions; (c) weekly familial psychotherapeutic sessions; (d) weekly group psychotherapy; (e) daily occupational and game activities. Patients were excluded from the study if their age was less than 12 years, they were being already treated pharmacologically at time of admission or had underlying organic diseases. Informed consent was signed by the parents of patients younger than 18 years before entering the present study. However, since no individual patient identification was involved and no study-driven clinical intervention was performed, only a simplified Institutional Review Board approval by the St. Orsola-Malpighi University Hospital Ethics Committee was obtained.

2.2. Clinical questionnaires

Subjects were asked to complete: (i) clinical details, history of laxatives, enemas, and diuretic abuse, healthcare-seeking behavior, previous GI disorder diagnosis and family history for GI diseases at baseline (admission to the Unit), (ii) Wexner constipation scores [21], (iii) a questionnaire on esophago-gastrointestinal (EGI) symptoms [22,23] at baseline, at discharge, at 1 month and at 6 months of follow-up, and (iv) MMPI–A or MMPI-2 [24] at baseline.

Wexner constipation scores: includes 8 variables (frequency of evacuation, time needed to evacuate, abdominal pain, daily efforts to defecate, difficulty of evacuation, incomplete defecation, manual aid and length of constipation) evaluated with a severity scale from 0 to 4 (except for manual aid, which is yes/no) with total score ranging from 0 to 30.

GI symptom questionnaire: each EGI symptom (S) was graded 0–4 according to its influence on the usual activities: 0, absent; 1, mild (not influencing usual activities); 2, moderate (diverting from, but not urging modifications of usual activities); 3, severe (influencing usual activities markedly enough to urge modifications); 4, extremely severe (preventing usual activities and/or bed rest). Frequency of symptoms (F) on weekly basis were classified as: 0, absent; 1, seldom (1/week); 2, occasional (2–3/week); 3, frequent (4–6/week); 4, always (7/week). The cumulative score (SxF) was considered moderate-severe if it was $\geq$6. Symptoms were analyzed as pooled esophageal and gastrointestinal into 2 subgroups according to theoretical anatomical and pathophysiological considerations: acid-related upper digestive tract (E, esophageal) or dysmotility-related center-lower tract (GI, gastrointestinal). E symptoms included dysphagia, acid regurgitation, heartburn, whilst GI symptoms were epigastric pain and burning, nausea, postprandial fullness, early satiety, gastric distention/bloating, abdominal pain and distention.

MMPI-A and MMPI-2: Minnesota Multiphasic Personality Inventory 2 (MMPI-2) is a widely used test specifically developed and validated to investigate psychopathology and psychological complaints. It is based upon 567 yes/no items in the MMPI-2 version [24,25] and 478 in the MMPI-A version [16,26]. It also includes 3 validity scales that offer additional information with regard to the patient's approach to the text and his/her defense mechanisms. Briefly: the L ("Lie") scale quantifies conscious defenses, with high scores reflecting attempts by patients to present themselves favorably, the K scale ("Correction") quantifies unconscious defenses, and the denial/evasiveness F scale ("Frequency") represents expression of malaises and infrequency of the given answers. MMPI-2 and MMPI-A dispose of 10 clinical scales that assess psychopathological traits. Hypochondriasis reflects concern about bodily symptoms, depression is related to depressive symptoms, hysteria to conversion-type symptoms, psychopathic deviate to anger and conflicts, masculinity/femininity to stereotypical masculine or feminine interests/behaviors, paranoia to levels of trust and suspiciousness, psychasthenia to anxiety and obsessiveness, schizophrenia to odd thinking and social alienation, hypomania to excitability and social introversion to social withdrawal. Validity scales were used in the study to confirm appropriateness of answers, and the so-called "neurotic scales" (hypochondriasis, depression, hysteria) were considered in the analysis. MMPI scores cut-off for abnormality was $\geq$65, whilst values $\geq$40 and <65 were considered normal [27].

2.3. Statistical analysis

The computer program Statistical Package for Social Science 14.0.1 (SPSS Inc., Chicago, IL) was used for statistical analysis [28]. Normally distributed data are expressed as mean $\pm$ standard deviation (SD), unless otherwise indicated, and non-normally distributed data are expressed as median and interquartile range (IQR). Data distribution was analyzed with skewness and kurtosis coefficients and Kolmograv-Smirnov test. Wilcoxon test and Spearman rank correlation were used. A p-value < 0.05 (two tailed) was considered significant. MMPI scores are expressed as T-scores ($T = 50 + 10z$; where z is the standard deviation value). BMI was standardized with a reference population, homogeneous for age and sex, and transformed in correspondent standard deviation score point Z [29,30], thus the value of BMI standard deviation (BMIsds) was considered.

3. Results

3.1. Participants

A total of 48 consecutive Caucasian patients (85.4% females, median age 15 years, IQR 11–19) were enrolled in the study. Thirty-nine patients (81%) were classified as having anorexia nervosa and 9 (19%) as having bulimia nervosa. Descriptive and clinical data are detailed in Table 1.

The median value of BMIsds was −3 (IQR −3.4 – −1.9). Family history of GI disorders was present in 48% of the patients. Forty percent of subjects had sought a gastroenterologist in the past, and they had generally been diagnosed as suffering from irritable bowel syndrome (IBS) (17%). Of the 48 patients included in this study, 25 (52%, 21 females, median age 14; IQR 12–18) were available for analysis at 6 months' follow-up, while the remaining 23 lived out of town and