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OBSERVATIONAL STUDY

Functional gastrointestinal disorders in eating disorder patients: Altered distribution and predictors using ROME Ⅲ compared to ROME Ⅱ criteria

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Abstract

AIM: To compare the prevalence of Functional gastrointestinal disorders (FGIDs) using ROME Ⅲ and ROME Ⅱ and to describe predictors of FGIDs among eating disorder (ED) patients.

METHODS: Two similar cohorts of female ED inpatients, aged 17-50 years, with no organic gastrointestinal or systemic disorders, completed either the ROME Ⅲ (n = 100) or the ROME Ⅱ (n = 160) questionnaire on admission for ED treatment. The two ROME cohorts were compared on continuous demographic variables (*e.g.*, age, BMI) using Student's t-tests, and on categorical variables (*e.g.*, ED diagnosis) using χ^2-tests. The relationship between ED diagnostic subtypes and FGID categories was explored using χ^2-tests. Age, BMI, and psychological and behavioural predictors of the common (prevalence greater than 20%) ROME Ⅲ FGIDs were tested using logistic regression analyses.

RESULTS: The criteria for at least one FGID were fulfilled by 83% of the ROME Ⅲ cohort, and 94% of the ROME Ⅱ cohort. There were no significant differences in age, BMI, lowest ever BMI, ED diagnostic subtypes or ED-related quality of life (QOL) scores between ROME Ⅱ and ROME Ⅲ cohorts. The most prevalent FGIDs using ROME Ⅲ were postprandial distress syndrome (PDS) (45%) and irritable bowel syndrome (IBS) (41%), followed by unspecified functional bowel disorders (U-FBD) (24%), and functional heartburn (FH) (22%). There was a 29% or 46% increase (depending on presence or absence of cyclic vomiting) in functional gastroduodenal disorders because of the introduction of PDS in ROME Ⅲ compared to ROME Ⅱ. There was a 35% decrease in functional bowel disorders (FBD) in Rome Ⅲ (excluding U-FBD) compared to ROME Ⅱ. The most significant predictor of PDS was starvation (P = 0.008). The predictor of FH (P = 0.021) and U-FBD (P = 0.007) was somatisation, and of IBS laxative use (P = 0.025). Age and BMI were not significant predictors. The addition of the 6-mo duration of symptoms requirement for a diagnosis in ROME Ⅲ added precision to many FGIDs.

CONCLUSION: ROME Ⅲ confers higher precision in diagnosing FGIDs but self-induced vomiting should be excluded from the diagnosis of cyclic vomiting. Psychological factors appear to be more influential in ROME Ⅱ than ROME Ⅲ.

Key words: Anorexia nervosa; Bulimia nervosa; Eating disorders; Gastrointestinal diseases; Irritable bowel syndrome

Core tip: We compared the prevalence, behavioural and psychological predictors of functional gastrointestinal disorders using ROME Ⅲ and ROME Ⅱ questionnaires in two similar cohorts of eating disorder patients. We found the added timeframe requirement in ROME Ⅲ added precision in diagnosing many Functional gastrointestinal disorders (FGIDs). We also found certain FGIDs in ROME Ⅲ are predicted by eating behaviours and appear to have less psychological input compared to ROME Ⅱ. These findings suggest that abnormal eating behaviours may play a more direct role in the disturbed physiology (both sensation and motility) of the gastrointestinal tract and hence the pathogenesis of certain FGIDs.

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INTRODUCTION

Functional gastrointestinal disorders (FGIDs) are prevalent and affected individuals have poorer quality of life[1-5]. These disorders are different from other gastrointestinal (GI) disorders because structural abnormalities are subtle or cannot be demonstrated by formal investigation. Therefore the diagnosis of FGIDs has mainly relied on the use of self-report questionnaires[6,7]. With increasing interest and understanding in these disorders, various questionnaires have been designed and revised over the years to best reflect their true prevalence[6,7].

The main types of eating disorders include anorexia nervosa (restricting type AN-R or binge purge type AN-P), bulimia nervosa (BN) and eating disorders not otherwise specified (restricting type EDNOS-R or binge purge type EDNOS-P). Abnormal eating disorder related behaviours include restriction of food intake, binge eating, purging and excessive exercise[8]. Eating disorder (ED) patients frequently report GI symptoms including bloating, nausea, epigastric discomfort, and a sensation of fullness. These symptoms may not only lead to unnecessary diagnostic tests but more importantly the refusal of food intake and justification for continuing their disordered eating. We have previously studied the prevalence and characteristics of FGIDs using ROME Ⅱ and found that patients with eating disorders exhibited a broad spectrum of different FGIDs[9]. Furthermore, we have observed a relationship between pelvic floor dysfunction and abdominal bloating and distension in ED patients[10].

ROME Ⅲ adult diagnostic criteria for FGIDs were published in 2006 and preserved the majority of the diagnoses previously found in ROME Ⅱ while significant changes were made in the gastroduodenal disorders group[6,7]. Functional dyspepsia has two new subdivisions in the ROME Ⅲ diagnostic criteria: postprandial distress syndrome (PDS) and epigastric pain syndrome[6]. There is a more detailed classification of vomiting syndromes including exclusion of DSM-Ⅳ diagnosed ED patients from functional vomiting, but not cyclic vomiting syndrome. In addition, rumination syndrome is now categorised as a functional gastroduodenal disorder whereas previously it was classified as a functional esophageal disorder. There is also a more detailed classification of the functional biliary tract and sphincter disorders. The most significant change to the Rome Ⅲ classification is an additional requirement of chronicity for a diagnosis, that is, the symptoms must be present for the last 3 mo, with symptom onset at least 6 mo prior to diagnosis. In contrast, using ROME Ⅱ, symptoms present during 12 wk (3 mo, which may not necessarily be consecutive) in the previous year would fulfil the diagnostic criteria.

Since publication of the ROME Ⅲ criteria, research has focused on one or a few FGIDs[11-14]. No study has described all of the FGIDs by ROME Ⅲ in a single publication, especially in the context of eating disorders. Only few papers have described individual FGIDs using ROME Ⅲ in patients with EDs[15].

The aims of the study were 1. to describe the prevalence and psychological and behavioural predictors of FGIDs among eating disorder patients using ROME Ⅲ criteria and 2 to compare their prevalence with FGIDs in a similar group of ED patients using ROME Ⅱ criteria. We were also interested in the prevalence of FGID categories and individual FGIDs with and without the 6-mo requirement of ROME Ⅲ to determine if this was a factor in any altered prevalence of FGIDs.

MATERIALS AND METHODS

Subjects

One hundred consecutive female inpatients in a specialized Eating Disorder Unit for treatment of their ED in 2011-2012, aged 17-50 years, with no major medical (celiac disease, endometriosis, diabetes) or major psychiatric illness (bipolar depression) were included in the study. A second cohort of 160 consecutive eating disorder patients who completed the ROME Ⅱ during inpatient treatment in the same unit for previous studies[9,16] were also included in this study. On admission, all patients were asked to complete psychological and eating disorder related questionnaires, and the ROME Ⅲ symptom questionnaire (details below). All patients also underwent routine clinical evaluation including blood tests (haematology, biochemistry, thyroid function) and specific investigations to exclude organic gastrointestinal disease where appropriate.

Ethics approval was granted by the Human Ethics Committee of the Northside Clinic.

Table 1 Descriptive details and diagnoses of the ROME Ⅲ and ROME Ⅱ cohorts[1]

Descriptive details	ROME Ⅲ cohort *n* = 100	ROME Ⅱ cohort *n* = 160
	Mean ± SD	Mean ± SD
Age (yr)	25.1 ± 7.9	24.7 ± 6.4
Current BMI kg/m^2	18.5 ± 3.8	18.2 ± 3.6
Lowest BMI kg/m^2	15.9 ± 2.9	15.7 ± 4.2
QOL ED score[2]	16.0 ± 3.5	16.3 ± 3.2
ED diagnoses	%	%
AN-R	27	26
AN-P	20	20
BN	9	18
EDNOS-R	14	11
EDNOS-P	30	25

[1]No significant differences between cohorts for descriptive details or diagnoses; [2]Range 0 to 24, > 7 indicative of the presence of an ED. AN-R: Anorexia nervosa-restricting; AN-P: Anorexia nervosa-purging; BN: Bulimia nervosa; EDNOS-R: Eating disorder not otherwise specified-restricting; EDNOS-P: Eating disorder not otherwise specified-purging; QOL ED: QOL related to eating disorders.

Questionnaires

The self-reported questionnaires comprised the following: (1) the ROME modular questionnaire[6,7] for gastrointestinal symptoms; (2) psychological questionnaires, namely the Eysenck Neuroticism Scale, from the Eysenck Personality Questionnaire[17], the Beck Depression Inventory[18], the State-Trait Anxiety Inventory[19] and the somatisation subscale from the Brief Symptom Inventory[20]; and (3) specific eating disorder questionnaires, namely the Eating and Exercise Examination (EEE)[21,22], an efficient, self-report, and computer-reported standardized examination of eating and exercise behaviours, attitudes and feelings. The EEE includes the QOL related to eating disorders[23,24], and the Eating Attitudes Test (EAT)[25], a 40-item measure of overall eating disorder pathology. The eating disorder behaviours were: self-induced vomiting, laxative use, binge eating (episodes of overeating felt to be out of control), starvation (eight waking hours per day without eating), and exercise, measured as average days per month for the previous 3 mo.

The specific categories of predictors of FGIDs were (1) psychological characteristics, *i.e.*, somatisation, neuroticism, state and trait anxiety, depression, EAT score; (2) eating disordered behaviours (average in previous 3 mo) including food restriction, exercise, starvation (more than 8 waking hours without eating), binge eating (eating 5 or more standard servings of food in one episode, associated with a feeling of being out of control), laxative use, self-induced vomiting; and (3) demographic characteristics including age, current BMI and lowest ever BMI.

Statistical analysis

The two ROME cohorts were compared on continuous demographic variables (*e.g.*, age, BMI) using Student's *t*-tests, and on categorical variables (*e.g.*, ED diagnosis) using χ^2 tests. The relationship between ED diagnostic subtypes (AN-R, AN-P, EDNOS-R, and EDNOS-P and BN combined) and FGID categories was also explored using χ^2 tests.

Age, BMI, and psychological and behavioural predictors of the presence or absence of the common (prevalence greater than 20%) ROME Ⅲ FGIDs and the presence of more than three FGID diagnoses were tested using logistic regression analysis. The prevalence of greater than 20% was chosen in order to obtain adequate numbers for statistical analysis. Initially three logistic regressions were conducted: with age and BMI; the behavioural variables; and the psychological variables. The significant predictors from each of these analyses were entered into a final logistic regression. Alpha was set at $P < 0.05$ for all analyses. Statistical analysis was performed using IBM SPSS Statistics for Windows (Version 20.0., Armonk, NY: IBM Corp).

RESULTS

Descriptive details and ED diagnoses

The descriptive and ED diagnoses of the ROME Ⅲ and ROME Ⅱ cohorts are shown in Table 1. There are no significant differences between the two cohorts on any of the continuous measures or ED diagnostic subtypes (all $P > 0.05$).

Prevalence of FGID categories

The prevalence of FGID categories for ROME Ⅲ (with and without 6-mo requirement) and ROME Ⅱ are shown in Table 2. For ROME Ⅲ functional gastroduodenal disorders prevalences are given with and without cyclic vomiting included and functional bowel disorders with and without unspecified bowel disease. There was a significant difference between the ED diagnostic subgroups for presence of gastroduodenal disorders ($\chi^2 = 9.67$, $\upsilon = 3$, $P = 0.022$) which no longer remained after cyclic vomiting was excluded (Table 3). There were no significant differences in prevalence of functional oesophageal disorders, functional bowel disorders or anorectal disorders between the four ED diagnostic subtypes.

Prevalence of individual FGIDs

The prevalence of individual FGIDs for ROME Ⅲ (with and without the 6-mo criteria) and ROME Ⅱ are shown in Table 4. The following diagnoses are only applicable to the ROME Ⅱ cohort and have been removed from the ROME Ⅲ: Unspecified Functional Abdominal Pain (2.5%), Gallbladder Dysfunction (1.8%), Sphincter of Oddi Dysfunction (0%), Levator Ani Syndrome (5.6%), and Pelvic Floor Dyssynergia (5.6%).

Predictors of commonly occurring FGIDs

Only four FGIDs occurred in 20% or more of patients. The predictors of these are shown in Table 5.

DISCUSSION

This is the first study of all categories of FGIDs using

Table 2 Prevalence of functional gastrointestinal disorders categories for ROME Ⅲ (with and without 6-mo requirement) and ROME Ⅱ (with 3-mo requirement)

	ROME Ⅲ cohort (*n* = 100)		ROME Ⅱ cohort (*n* = 160)
	With 6-mo requirement	With 3-mo requirement	Present 3 mo or more
Region			
A: Functional Esophageal Disorders	34%	55%	40%
B: Functional Gastroduodenal Disorders	62%	79%	16%
Without cyclic vomiting	45%	60%	
C: Functional Bowel Disorders	77%	98%	88%
Without unspecified bowel disease	53%	80%	
D: Functional Abdominal Pain Syndrome	3%	6%	4%
E: Functional Gallbladder and Sphincter of Oddi Disorders	0%		2%
F: Functional Anorectal Disorders[1]	16%	20%	35%
Total			
At least one FGID	83%		94%
At least 3 FGIDs	34%		36%

[1]Two ROME Ⅲ functional gastrointestinal disorders (FGIDs) within the functional anorectal disorder category are for 3 mo only (and F1. Functional Fecal Incontinence not included).

Table 3 Prevalence of individual functional gastrointestinal disorders present in ROME Ⅲ with and without 6-mo presence requirement and the prevalence of these in ROME Ⅱ

	ROME Ⅲ (*n* = 100)		ROME Ⅱ (*n* = 160)
	With 6-mo requirement	With 3-mo requirement	Present 3 mo or more
A1: Functional Heartburn[1]	22%	26%	24%
A2: Functional Chest Pain of Presumed Esophageal Origin[1]	8%	17%	4%
A3: Functional Dysphagia[1]	6%	16%	9%
A4: Globus[1]	1%	2%	5%
B1: Functional Dyspepsia[1]	0%	57%	7%
B1a: Postprandial Distress Syndrome[1]	45%	72%	-
B2a: Aerophagia[1]	14% (a,b combined)	18% (a,b combined)	11%
B2b: Unspecified Excessive Belching[1]			-
B3a: Chronic idiopathic nausea[1]	10%	14%	-
B3c: Cyclic vomiting syndrome	17%	19%	-
B4: Rumination Syndrome in Adults[1]	7%	7%	2%
C1: Irritable Bowel Syndrome[1]	41%	57%	45%
C2: Functional Bloating[1]	1%	3%	30%
C3: Functional Constipation[1]	11%	27%	26%
C5: Unspecified Functional Bowel Disorder[1]	24%	18%	-
F1: Functional Fecal Incontinence (3 mo)	15%	15%	11%
F2a: Chronic Proctalgia[1]	5%	5%	-
F2b: Proctalgia Fugax (3 mo)	11%	11%	21%

[1]FGID in ROME Ⅲ and ROME Ⅱ; B3b. Functional vomiting[1] is excluded for ED patients. Prevalences of individual FGID < 5 excluded from table, B1b: Epigastric pain syndrome[1]; C4: Functional diarrhea[1]; D: Functional abdominal pain syndrome; E: Functional gallbladder and sphincter of oddi disorders; E1: Functional gallbladder disorder; E2: Functional biliary sphincter of oddi disorder; E3: Functional pancreatic sphincter of oddi disorder; F3: Functional defecation disorders.

ROME Ⅲ in ED patients and the first to compare prevalence based on ROME Ⅱ and ROME Ⅲ criteria[12,13]. The introduction with ROME Ⅲ of the requirement of presence of symptoms for at least 6 mo is a key influence in the differences observed in prevalence of individual FGIDs in patients with ED.

PDS, a new FGID, was common in ED patients and the most significant predictor was starvation. This finding could be explained by the physiological repercussions of severe food restriction, such as delayed gastric emptying[26-28]. This is consistent with the recent finding of Santonicola *et al*[15], that there is a significant higher propensity for AN patients to have early satiety compared to BN patients. What occurred first cannot be determined; it could be starvation leading to impaired gastric emptying leading to PDS or it could be discomfort on eating for other reasons, including psychological, resulting in semistarvation because of fear of PDS symptoms of fullness and discomfort. Because these are eating disorder patients both could be true. PDS is also weakly predicted by depression, the greater the depressive symptoms the greater the likelihood of PDS. When starvation and depression are occurring together it is hard to ascertain, which came first, particularly among eating disorder patients as both are common.

Our data also suggests less exercise is associated with

Table 4 Prevalence of functional gastrointestinal disorders categories for ROME Ⅲ (with 6-mo requirement) by eating disorder sub-types

	ROME Ⅲ cohort				
	AN-R (*n* = 27)	AN-P (*n* = 20)	BN (*n* = 9)	EDNOS-R (*n* = 14)	EDNOS-P (*n* = 30)
A: Functional Esophageal Disorders	14.8%	35.0%	33.3%	42.9%	46.7%
B: Functional Gastroduodenal Disorders	44.4%	75.0%	88.9%	42.9%	70.0%
Without cyclic vomiting	44.4%	60.0%	44.4%	35.7%	40.0%
C: Functional Bowel Disorders	63.0%	85.0%	77.8%	85.7%	80.0%
Without unspecified bowel disease	40.7%	65.0%	55.6%	50.0%	56.7%
D: Functional Abdominal Pain Syndrome	7.4%	5.0%	0.0%	0.0%	0.0%
E: Functional Anorectal Disorders[1]	7.4%	10.0%	11.1%	35.7%	20.0%
Total					
At least one FGID	70.4%	95.0%	88.9%	85.7%	83.3%
At least 3 FGIDs	18.5%	40.0%	33.3%	35.7%	43.3%

[1]Functional fecal incontinence not included. AN-R: Anorexia nervosa-restricting; AN-P: Anorexia nervosa-purging; BN: Bulimia nervosa; EDNOS-R: Eating disorder not otherwise specified-restricting; EDNOS-P: Eating disorder not otherwise specified-purging; NB: Functional gallbladder and sphincter of oddi disorders were absent for the entire sample; FGID: Functional gastrointestinal disorders.

Table 5 Behavioural and psychological predictors of the commonly occurring ROME Ⅲ functional gastrointestinal disorders among eating disorder patients

ROME Ⅲ FGID	Predictors	B	Wald	υ	*P*	OR	95%CI	
A1: Functional Heartburn	Somatisation	0.13	5.31	1	0.021	1.14	1.02	1.27
B1a: Postprandial Distress Syndrome	Starvation	0.58	6.99	1	0.008	1.79	1.16	2.76
	Exercise	-0.57	6.23	1	0.013	0.56	0.36	0.88
	Depression	0.67	4.73	1	0.030	1.07	1.01	1.14
C1: Irritable Bowel Syndrome	Laxatives	0.46	5.05	1	0.025	1.58	1.06	2.35
C5: Unspecified Functional Bowel Disorder	Somatisation	-0.19	7.21	1	0.007	0.83	0.73	0.95

The potential predictors: Age, BMI, binge eating behaviour, vomiting, depression and state and trait anxiety did not predict any common functional gastrointestinal disorders (FGIDs). There were no significant predictors of presence of three or more FGIDs.

PDS. This is in keeping with our previous study that there was a worsening of oesophageal disorders in among patients undertaking excessive, intense exercise as a means of weight control[16]. The amount and intensity of exercise of eating disorder patients can be extreme[23] and could result in upper gastrointestinal problems which commonly occur in marathon runners[29]. This should not be interpreted to mean light to moderate exercise should not be undertaken, in fact the reverse is true, moderate exercise improves depression[30].

It is likely that the intermittent or long term negative energy balance in these patients results in an alteration of GI motility and that this leads to further food restriction in order to prevent resultant GI symptoms[31]. That is, the symptoms provoked by eating in the presence of dysmotility result in the reinforcement and continuation of the disordered eating.

Another key finding was that IBS was prevalent in both cohorts. IBS was only weakly predicted by laxative use (not abuse) in the ROME Ⅲ cohort, whereas, in previous studies using ROME Ⅱ criteria IBS was predicted by somatisation and anxiety[9]. This suggests the ROME Ⅲ criteria, with the inclusion of the 6-mo criteria and the exclusion of unspecified bowel disorders (U-FBD), are more specific for the IBS symptom cluster. It is possible that laxative use may prime or condition the GI tract to IBS symptoms.

U-FBD was present in 24 percent of ROME Ⅲ patients. We observed that somatisation was associated with decreased odds of U-FBD. Perhaps those who are lower on the somatisation spectrum will not report sufficient symptoms to qualify for a specific FGID, and thus become classified as U-FBD. In Boyd *et al*[9] more than three FGIDs present in ROME Ⅱ was strongly predicted by neuroticism (indicative of psychopathology) whereas in the current study there were no predictors despite the presence of more than three ROME Ⅲ FGIDs in 34 percent of patients. This finding again may relate to the improved precision of the criteria for FGIDs when the 6-mo time stipulation is used. Fluctuations in appearance and disappearance of FGIDs in ED patients have been reported for ROME Ⅱ FGID[32]. The imprecision of ROME Ⅱ diagnostic clusters and the capacity to diagnose based on acute or less temporally stable symptoms, could explain the relationship between presence of multiple FGIDs and neuroticism. The precision of ROME Ⅲ diagnoses and requirement for more 'chronic' or temporally stable symptoms would explain the loss of association with multi-morbidity and neuroticism in the ROME Ⅲ sample.

FH was predicted by somatisation in both ROME Ⅱ and ROME Ⅲ. In ROME Ⅲ there was a substantial increase in functional gastroduodenal disorders of 46%. This was reduced to 29% if cyclic vomiting was not

included in the diagnosis. There was a significant difference between the ED diagnostic subgroups for presence of gastroduodenal disorders with the patients who purge (self-induce vomiting) being more likely to report gastroduodenal disorders. This difference no longer remains after cyclic vomiting was excluded. This suggests that self-induced vomiting should not be included in cyclic vomiting as it is giving an inflated and misleading prevalence of this disorder. There was also decrease in functional bowel disorders of 11%; this decrease was 35% after unspecified bowel disease was removed.

The study would have benefited by a larger cohort of patients completing the ROME Ⅲ and follow-up over 12 mo to investigate the stability of the FGIDs now with the introduction of requirement of the presence of symptoms for 6 mo or more. One potential weakness of the study is the reliance on self-report data. Although there were no differences between the two cohorts they were both inpatients at a specialised clinic and therefore not representative of all eating disorder patients.

Using the ROME Ⅲ criteria in an ED patient sample, specific abnormal eating related behaviours such as starvation, exercise and laxative use are associated with the presence of certain FGIDs. These findings are consistent with the notion that FGIDs can arise from long term abnormal eating and the altered neuronal and hormonal physiology in the gastrointestinal tract[33,34]. Higher emotional states such as prolonged stress may predispose and then sensitise individuals to express their feelings as gut symptoms and in the long term abnormal eating reinforces the altered physiological states[35].

CONCLUSION

ROME Ⅲ confers higher precision in diagnosing FGIDs particularly with the inclusion of the chronicity requirement of symptom onset at least 6 mo prior, compared to 3 mo with ROME Ⅱ. It would be improved if self-induced vomiting was excluded from cyclic vomiting syndrome in addition to its exclusion from functional vomiting. Two of the new ROME Ⅲ criteria, PDS and U-FBD, are prevalent among ED patients. Starvation, less exercise and depression predicted PDS, and somatisation U-FBD. As found previously for ROME Ⅱ laxative use predicted IBS and somatisation FH[9,16]. ROME Ⅲ appears to have less psychological input to the diagnosis of FGIDs than ROME Ⅱ.

COMMENTS

Background

Functional gastrointestinal disorders are a group of conditions that represent altered sensation, motility and function of the gastrointestinal system. The pathogenesis of functional gastrointestinal disorders (FGIDs) is not fully elucidated and their diagnosis relies heavily on exclusion of organic causes and carefully designed self-report questionnaires. Gastrointestinal symptoms are common in patients with eating disorders and represent adversities during the treatment and outcome.

Research frontiers

Since the publication of ROME Ⅲ diagnostic criteria for adult FGIDs, research has focused on its utility and application and most of the publications focused on one or two types of FGIDs. Systematic examination and characterisation of all FGIDs using ROME Ⅲ criteria have not been conducted in patients with eating disorders. In this publication, the authors studied and characterised the prevalence and certain characteristics of FGIDs in a group of patients with eating disorders.

Innovations and breakthroughs

This is the first report to examine all types of FGIDs in the eating disorder population and authors have found that compared to ROME Ⅱ, the new ROME Ⅲ results in higher precision in the diagnosis of FGIDs. Interestingly, certain FGIDs in ROME Ⅲ appear to have more input from altered eating behaviours than psychological factors compared to the ROME Ⅱ counterparts.

Applications

The authors findings suggest altered gut physiology as a more important factor in the pathogenesis of FGIDs and research in eating disorder patients offers a unique niche to the understanding of altered gut physiology and its interaction with psychological factors.

Terminology

Eating disorders are a group of diagnoses that are characterised by abnormal eating behaviours and associated psychological and physiological changes. Anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified are subtypes of eating disorders. Functional oesophageal, gastroduodenal, bowel, abdominal pain and anorectal disorders are subgroups of functional gastrointestinal disorders classified in ROME Ⅲ diagnostic criteria.

Peer review

The authors compared the prevalence of various FGIDs in patients with eating disorders using ROME Ⅲ to those in ROME Ⅱ diagnostic criteria and demonstrated higher precision of certain diagnoses using ROME Ⅲ criteria. The authors also showed certain FGIDs are associated with abnormal eating behaviours. The study offers some interesting aspect to the understanding of the pathogenesis of FGIDs.

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