Functional Gastrointestinal Disorders: An Update for the Psychiatrist

MICHAEL P. JONES, M.D., MICHAEL D. CROWELL, PH.D.
KEVIN W. OLDEN, M.D., FRANCIS CREED, M.D., F.MED.SCI.

Functional gastrointestinal disorders (FGID) are common conditions, with well-established diagnostic criteria. They are associated with impaired health-related quality of life and increased societal and healthcare costs. Their symptoms are probably related to altered 5-HT transmission and central processing of noxious visceral stimuli. Evaluation and treatment are best formulated using a biopsychosocial model that integrates gut function with psychosocial assessment. Psychological therapies may improve overall well-being and appear to help patients without significant psychiatric comorbidity. Antidepressants help comorbid anxiety and depressive disorders and have primary efficacy in improving the symptoms of FGID. Finally, there is a need for greater involvement of psychiatrists in both the evaluation and treatment of patients with FGID as well as the education and training of practitioners caring for these patients.

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DEFINITIONS

FGID are symptom-based disorders, and various diagnostic criteria have been developed over the years. Analogous to the DSM process in psychiatry, experts in these conditions periodically meet to provide standardized definitions for commonly-encountered FGID. The overall goal is to provide diagnostic standardization that facilitates clinical research and patient care. The current diagnostic criteria are known as The Rome Criteria, and their third revision is currently in press. In addition to standardizing diagnostic criteria, specialized teams have provided insight and guidance with respect to a variety of related issues, including the role of gender, pediatric populations, psychosocial aspects, and the design of clinical trials. Diagnostic criteria

Received February 27, 2006; revised May 8, 2006; accepted June 13, 2006. From the Feinberg School of Medicine, Northwestern University, Chicago, IL; Mayo Clinic College of Medicine, Scottsdale, AZ; Univ. of South Alabama, Mobile, AL; and Manchester Royal Infirmary, Manchester, UK. Send correspondence and reprint requests to Michael P. Jones, M.D., 251 East Huron St., Galter Pavilion 4-104, Chicago, IL 60611-2908, e-mail: mpjones@nmh.org

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Functional Gastrointestinal Disorders

for IBS and functional dyspepsia, two of the most commonly encountered FGID, are presented in Table 1. Interested readers are referred to the full published criteria.  

MAGNITUDE OF THE PROBLEM

FGID are highly prevalent in western society. Several surveys show that irritable bowel syndrome is the most frequent FGID seen in outpatient clinical practice. IBS accounts for 12% of patients seen in primary care, and it is the largest diagnostic group seen in gastroenterology practice.  

Importantly, the majority of patients with FGID do not seek care. In the United States, only 30% of persons with IBS seek medical attention. Consulting rates are higher in countries with better access to health care, such as Australia. Pain severity is also an important determinant of consulting. Several studies, however, have demonstrated that consultants and non-consulters do not differ as greatly with respect to physical symptoms as they do with respect to psychiatric distress, illness behavior, and coping styles.  

FGID are associated with significant decrements in quality of life (QOL) and increased direct and indirect healthcare costs. A recent review of available studies from the U.S. and U.K. determined that total direct-cost estimates per patient per year ranged from $348 to $8,750 (US) for IBS and functional dyspepsia, two of the most commonly encountered FGID, are presented in Table 1. Interested readers are referred to the full published criteria. 

Table 1. Excerpts From The Rome II Criteria

<table>
<thead>
<tr>
<th>Classification of Functional Gastroduodenal and Bowel Disorders</th>
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<tbody>
<tr>
<td>I. Gastroduodenal Disorders</td>
<td></td>
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<tr>
<td>A. Functional Dyspepsia</td>
<td></td>
</tr>
<tr>
<td>1. Ulcer-like dyspepsia</td>
<td></td>
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<tr>
<td>2. Dysmotility-like dyspepsia</td>
<td></td>
</tr>
<tr>
<td>3. Unspecified (nonspecific) dyspepsia</td>
<td></td>
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<tr>
<td>B. Aerophagia</td>
<td></td>
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<tr>
<td>C. Functional Vomiting</td>
<td></td>
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<tr>
<td>II. Bowel Disorders</td>
<td></td>
</tr>
<tr>
<td>A. Irritable Bowel Syndrome (IBS)</td>
<td></td>
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<tr>
<td>B. Functional Abdominal Bloating</td>
<td></td>
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<tr>
<td>C. Functional Constipation</td>
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<tr>
<td>D. Functional Diarrhea</td>
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<tr>
<td>E. Unspecified Functional Bowel Disorder</td>
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</table>

Diagnostic Criteria for Irritable Bowel Syndrome (IBS)

At least 12 weeks, which need not be consecutive, in the preceding 12 months, of abdominal discomfort or pain that has two of three features:

1. Pain relieved with defecation; and/or
2. Onset associated with a change in frequency of stool; and/or
3. Onset associated with a change in form (appearance) of stool

Diagnostic Criteria for Functional Dyspepsia

At least 12 weeks, which need not be consecutive, within the preceding 12 months, of:

1. Persistent or recurrent dyspepsia (pain or discomfort centered in the upper abdomen); and
2. No evidence of organic disease (including at upper endoscopy) that is likely to explain the symptoms; and
3. No evidence that dyspepsia is exclusively relieved by defecation or associated with the onset of a change in stool frequency or stool form (i.e., not IBS)

The classification scheme for functional gastrointestinal and bowel disorders (FGID) are shown. Diagnostic criteria for IBS (irritable bowel syndrome) and functional dyspepsia, the two most common FGID, are also listed.

Table 2. General Quality-of-Life (QOL) Scores From the SF–36 Health Survey for Persons With Gastroesophageal Reflux Disease (GERD), Diabetes (DM), Depression, and End-Stage Renal Disease (ESRD), and the General U.S. Population, Compared With Persons With Irritable Bowel Syndrome (IBS)

<table>
<thead>
<tr>
<th>SF–36 Scale</th>
<th>IBS (N=858)</th>
<th>U.S. Population (N=2,474)</th>
<th>GERD (N=471)</th>
<th>DM (N=541)</th>
<th>Depression (N=502)</th>
<th>ESRD (N=165)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Component summary</td>
<td>42.7 (10.5)</td>
<td>49.6 (3.8)**</td>
<td>45.9 (9.3)**</td>
<td>41.5 (11.3)</td>
<td>45.0 (12.1)**</td>
<td>35.1 (20.1)**</td>
</tr>
<tr>
<td>Mental Component summary</td>
<td>43.4 (11.4)</td>
<td>50.0 (1.2)**</td>
<td>49.2 (10.3)**</td>
<td>51.9 (9.6)**</td>
<td>34.8 (12.2)**</td>
<td>47.8 (17.3)*</td>
</tr>
</tbody>
</table>

**p = 0.002, ***p<0.001, compared with the IBS sample and adjusted for multiple comparisons by use of the Hochberg method.
FIGURE 1. The Biopsychosocial Model of Functional Gastrointestinal Disorders (FGID)

Risk Factors
- Pathological stress
- Psychosocial stressors
- Early life experience
- Genetic factors
- Infection
- Surgery
- Antibiotics

Trigger Factors
- Psychosocial stressors
- Symptom-related anxiety

Perpetuating Factors
- Symptom-related anxiety
- IBS patient

and that indirect costs ranged from $355 to $3,344. The average number of days off from work per year because of IBS ranged from 8.5 to 21.6. In a comprehensive assessment of illness burden for gastrointestinal (GI) illnesses in the United States, IBS was second only to esophageal reflux (GERD) in its prevalence (15.4 million people) and was associated with $1.6 billion in direct and $19.2 billion in indirect costs.

Using both general and condition-specific measures, a large number of studies have demonstrated decreased QOL in these patients. The decrements in quality of life seen in FGID patients are often greater than those seen in classically recognized “diseases” such as diabetes or GERD (Figure 1).

BRAIN–GUT CONNECTIONS IN FGID

The pathophysiology of FGID is not completely understood and is likely multifactorial. Early studies of IBS focused on stress and bowel hyperreactivity. Later studies focused more on end-organ abnormalities of motility or sensation, and compliance. What has become increasingly clear is that the standard reductionist approach to pathophysiology has not been fruitful, and a broader, more integrated conceptualization is needed. That conceptualization involves understanding the interrelationship between digestive function and the central nervous system (CNS); it is known as the biopsychosocial model.

The gut and the brain are highly integrated, and they communicate in a bidirectional fashion, largely through the autonomic nervous system (ANS) and hypothalamic-pituitary-adrenal (HPA) axis. Within the CNS, the locus of gut control is chiefly within the limbic system, which is responsible for both the internal and external homeostasis of the organism. The limbic system also plays a central role in emotionality, which is a nonverbal system that facilitates survival, threat-avoidance, social interaction, and learning. The generation of emotion and associated physiological changes are the work of the limbic system, and, from a neuroanatomic perspective, the “mind/body interaction” may largely arise in this region. Importantly, the limbic system is also involved in the “top-down” modulation of visceral pain and visceral perception. This bidirectional communication also incorporates the influences of a variety of cognitive/psychological factors, visceral perception, and motor abnormalities. We have recently published an extensive review on brain–gut connections in FGID that offers the reader a much more detailed treatment of this important topic.

IBS and perhaps other FGID can also be characterized by the interaction of visceral hypersensitivity and abnormal gut motility. A concept central to this theory is the development of hyperexcitability of neurons in the dorsal horn of the spinal cord. This hyperexcitability can develop in response to either peripheral tissue irritation or influences originating from the brainstem. It is postulated that IBS results from the disrupted coordination of these centers.

Parallel findings have indicated that serotonin (5-HT) is an important neurotransmitter in the enteric nervous system, as well as the CNS, and that it plays an important role in the activation and inhibition of pain pathways and the initiation of the peristaltic reflex. 5-HT is distributed throughout the gut, predominantly within enterochromaffin cells in the mucosal crypts and, to a lesser extent, within the nerve fibers of the myenteric and submucosal plexuses. 5-HT exerts its wide range of effects through actions on numerous receptor subtypes. In the GI tract, the primary receptors appear to be 5-HT3 and 5-HT4 subtypes. However, 5-HT1A, 5-HT1C, 5-HT1P, and 5-HT2 subtypes have been identified on enteric nerves or on GI smooth-muscle cells.

The importance of 5-HT as a neurotransmitter in the gut parallels its important role in the CNS. 5-HT has been implicated in diverse functions and dysfunctions, including those of mood, appetite, sleep, memory and learning, homeostasis, and sexual behaviors. Altered levels of 5-HT are thought to have a role in many CNS disorders, including generalized anxiety, obsessive-compulsive disorder, phobias, major depressive disorders, and even in thought-disorders such as schizophrenia. Many of these extra-intestinal symptoms have been commonly reported as comorbid conditions in patients with functional GI disorders such as IBS. Altered autonomic regulation and extra-intestinal symptoms suggest a more generalized CNS dys-
function. Altered sleep patterns in IBS patients, particularly altered REM sleep, provide further evidence for CNS dysfunction that may be related to 5-HT-related dysfunction.\textsuperscript{18} Therapies targeting CNS serotonergic transmission, such as antidepressants and anxiolytics, have shown efficacy in treating some of the symptoms associated with IBS.\textsuperscript{19}

These findings suggest that alterations in 5-HT transmission have a central role in brain–gut interactions and may play a role in the development or perception of IBS symptoms. The “5-HT hypothesis” should not be viewed in isolation, however. Central autonomic integration is required for the maintenance of normal functioning in the CNS and its periphery. Balance is required among the major monoaminergic systems, which include the adrenergic, serotonergic, and dopaminergic systems. These systems are dynamic, with prominent functional biorhythms, and each is capable of agonistic or antagonistic effects on the others. Autonomic dysfunction has been reported in IBS patients,\textsuperscript{20} and it may, therefore, represent one of the pathophysiologic mechanisms by which the intestinal and extraintestinal symptoms are manifested in IBS.

5-HT and Visceral Pain

A number of studies have shown that patients with FGID have a heightened state of visceral sensation or perception.\textsuperscript{21} Several studies have shown that 5-HT\textsubscript{3} receptor-antagonists may modify visceral sensation in animal and human models.\textsuperscript{22} 5-HT\textsubscript{4} receptors also modulate pain transmission at the level of primary afferents, transduction within the spinal neurons, or possibly through activation of inhibitory bulbospinal descending pathways acting on presynaptic dorsal horn neurons. Several animal studies using varying methodologies have shown that a 5-HT\textsubscript{4} partial agonist, tegaserod, induced a dose-dependent decrease in pain responses during noxious colorectal distention.\textsuperscript{23,24} These observations suggest involvement of 5-HT and its receptors in the modulation of visceral sensitivity and perception.

Central Processing of Noxious Visceral Stimuli

Using functional neuroimaging modalities, a number of studies have demonstrated alterations in central processing of visceral stimuli in patients with FGID.\textsuperscript{15} This is an evolving, immature area, populated by a small number of studies, generally with small sample sizes. Most studies demonstrate heightened activity in regions previously noted to be involved with visceral or somatic pain.\textsuperscript{25} These areas include the perigenual and mid-anterior cingulate cortex (ACC), prefrontal cortex, insular cortex, thalamus, and somatosensory cortex. Specifically, it is uncertain whether observed alterations in regional brain activity represent a primary abnormality or simply the neuroimaging equivalent of hypervigilence. To date, three studies have evaluated treatment interventions (cognitive therapy, alosetron, and amitriptyline), and all have shown decreased activity in the perigenual ACC after treatment, but effects on brain activity in other regions have not been as consistently reported.\textsuperscript{15} Whether these interventions specifically target brain regions identified is not known at present.

PSYCHOSOCIAL ASSESSMENT IN FGID

The Biopsychosocial Model

Stress, defined as a threat to the homeostasis of the organism, clearly plays a role in FGID.\textsuperscript{26} Stress can be real or perceived and can arise from internal or external sources. The interrelationship between digestive function and sensation with stress forms the basis of the biopsychosocial model (Figure 1). In this model, various stressors can transiently or permanently alter physiologic stress responses, along with symptom-generation, perception, and perpetuation. Genetic predisposition and early-life stress (both physiologic, such as enteritides, or psychologic, such as abuse, neglect, or parental loss) influence individual vulnerability to developing FGID later in life. Subsequent exposure to physiologic or psychological stressors may then trigger or exacerbate digestive symptoms. Fear conditioning and interoceptive conditioning are likely to play important roles in triggering stress responses to situations and contexts that, by themselves, are not threatening or stressful.\textsuperscript{27} Symptom-specific anxiety and conditioned fear to visceral sensations may play important roles in symptom perception and perpetuation in many patients with FGID.

Psychosocial Factors in FGID

Effective treatment of the patient with FGID requires an understanding of the psychosocial background against which symptoms occur. A number of factors are recognized as independent predictors of favorable treatment outcome.\textsuperscript{28} These include fewer psychiatric symptoms (particularly those of depression, panic, and neurasthenia); absence of an abuse history; less illness-worry; psychological rather than somatic orientation; and greater social support. Although a wide range of psychological constructs have been associated
with FGID, this focused review will concentrate on the most dominant and common conditions.

Life Stress

Life stress frequently occurs immediately before the onset or exacerbation of FGID. Life stress frequently occurs immediately before the onset or exacerbation of FGID.29 Patients with FGID report symptoms more often associated with negative life changes than do either control subjects or patients with organic disorders. This finding appears particularly true for dissolution of intimate relationships.

Personality and Coping Strategies

Personality features and coping strategies have not been implicated in symptom-generation in FGID, but they significantly influence healthcare-seeking and levels of distress. The factors most strongly identified are neuroticism, hostility, maladaptive coping, and emotional hypersensitivity.30,31 Several studies have shown that patients with IBS who are seeking care have more neurosis and anxiety than either non-consulters with IBS or healthy-control subjects. However, patients with organic medical disorders tend to have similar levels of neuroticism, suggesting that neuroticism may play a greater role in illness-behavior than in symptom-generation.32

Coping styles differ between consulters and non-consulters with FGID. Despite similar symptom severity, consulting patients with non-ulcer dyspepsia have been shown to rely more on symptom-monitoring and confrontative coping styles than do non-consulting patients.33

Illness-Behaviors

Adults with IBS are more likely to report receiving gifts or privileges when they were ill as children and report that their parents displayed similar illness-behavior.34 Psychological distress is also an independent predictor of illness-behavior and healthcare-seeking.35,36

Visceral Anxiety and Somatization

IBS consulters also demonstrate greater concern that their symptoms represent serious underlying disease and often dismiss information that refutes these concerns.37 Also, IBS patients have been shown to have higher scores for hypochondriacal beliefs, disease phobias, and bodily preoccupation.38 Somatization is also more prevalent in patients with FGID than in healthy-control subjects.39 Patients with FGID frequently report “extra-intestinal” symp-

Psychiatric Disorders

Psychiatric disorders are common in FGID, particularly in patients with severe or refractory symptoms, where the prevalence of a psychiatric diagnosis is between 42% and 61%.41 The most prevalent diagnoses seen in patients at referral centers include anxiety disorders; mood disorders (including major depression); and somatoform disorders, such as pain and somatization disorders.42,43 The onset of the psychiatric illness often predates or coincides with the onset of bowel disorder.44 A growing body of evidence points to alterations in processing of visceral sensation in patients with FGID and concomitant psychiatric disorders.45,46 This may explain much of the visceral hypersensitivity experienced by these individuals.

Abuse

A history of abuse appears to be more common in patients with FGID than in patients with organic digestive disorders, and rates of abuse are between 30% and 56% in studies conducted in referral centers.47,48 Patients with a history of abuse are more likely to have severe digestive symptoms, more extradigestive symptoms, greater psychiatric distress, greater healthcare utilization, and poorer clinical outcomes. Unfortunately, physicians are aware of a patient’s abuse history in only 17% of cases.49 The presence of particularly severe or refractory GI symptoms, excessive healthcare utilization, and symptoms in multiple organ systems should alert the physician to the possibility that the patient may have suffered significant physical or sexual abuse.

IMPLEMENTING AND OPTIMIZING PSYCHOSOCIAL ASSESSMENT

Although certain symptoms are often regarded as markers for associated psychopathology (e.g., chest pain and anxiety), the true predictive value of these is not well studied. In FGID, the association of specific symptoms with psychiatric disturbances is not strong.50 Overall, there appear to be few data supporting a predictive relationship between any specific bowel symptom and either psychiatric disturbances or pattern of ANS dysfunction. Although specific symptoms do not appear to be predictive of psychiatric distress, the number of reported digestive and nondigestive
symptoms may be more predictive of psychiatric comorbidity.51

Need for Objective Assessment

Clinical assessment is inherently subjective, and observer bias may distort perceptions. This appears to be particularly true for FGID, which are often perceived negatively by the medical profession. A survey of British nurses demonstrated that 70% of nurses felt that FGID patients were difficult, demanding, craved attention, were neurotic, unable to cope, and had a low pain threshold.52 Although half the respondents admitted to a poor knowledge of the condition, approximately 90% of nurses believed that FGID was “all in the patient’s mind.” A more recent study found that general practitioners lacked knowledge about and had negative attitudes toward FGID patients that could significantly affect their level of care.53

Implementing Psychiatric Screening in Clinical Practice In general, gastroenterologists and primary-care physicians are both poorly trained and motivated to undertake effective psychosocial screening of FGID patients. Greater involvement of behavioral-medicine specialists directly in outpatient clinics will facilitate evaluation and treatment, reduce disease stigma, and send an important message to patients and clinicians alike regarding the importance of the biopsychosocial model in the management of FGID. Also, close collaboration of gastroenterology and behavioral medicine will enrich practitioners in both disciplines.

The use of standardized psychological measures in clinical practice can improve the collection, synthesis, and reporting of data, as compared with unstructured clinical interviews. It can also improve practice efficiency, allowing more time for dialogue between the patient and physician. We advocate the use of these instruments by trained personnel as screening tools that can suggest the need for further investigation into psychosocial factors.

A variety of measures applicable to the evaluation of FGID exist, and the criteria for test selection depend upon time, cost, and goals of testing. We use self-report measures and limit testing time, for clinical purposes, to not more than 20 minutes. In clinical practice, screening, rather than diagnostic measures, is more appropriate, since the goal is simply to identify individuals who should be evaluated further. We also use measures that can be easily scored without the need for additional equipment. Currently, we use the Hospital Anxiety and Depression Scale, the Perceived Stress Scale, the Visceral Sensitivity Index, and the Maastricht Questionnaire for Vital Exhaustion.

Psychological Therapies for FGID

Psychotherapy is an established treatment for FGID, and there have been three recent systematic reviews of current research findings.54–56 The conclusions of these reviews varied from “efficacy has not been established”56 through “guarded optimism”54 to “effective in reducing symptoms compared with a pooled group of control conditions.”55 Assessing the efficacy of psychological therapies is a daunting task because a variety of therapies have been used to treat patients with conditions of varying severity and at varying levels of care. In view of these differences in patient selection and types of treatment, performing a satisfactory systematic review is an ambitious undertaking, and results should be interpreted cautiously.

The review by Lackner and colleagues55 is both the most recent and most thorough. Of 32 randomized, controlled trials, 17 were considered suitable for inclusion. The review found evidence to support the efficacy of psychological treatment, although no specific therapy could be shown to be superior. One potential confounding factor is that many of the included trials were performed at the same center (where the author also happened to be affiliated). These studies used wait-list controls and small sample sizes and recruited subjects from the general population who were seeking non-drug treatment for their FGID. Thus, the relevance of these trials to clinical practice is uncertain.

Although studies evaluating psychological therapies have often been limited by small sample sizes, two recent randomized, controlled trials evaluating psychological therapies have used large samples and rigorous methods.57,58 These deserve review: Drossman and colleagues57 studied 431 patients with severe functional bowel disorders. In one half of the trial, desipramine was compared with placebo. In the other half, 12 sessions of cognitive-behavioral therapy (CBT) were compared with psycho-education. After 3 months of treatment, the groups were compared on a composite outcome score comprising satisfaction, global well-being, IBS-QOL, and pain. CBT did not differ significantly from psycho-education with respect to IBS-QOL or the pain score but was superior in terms of satisfaction with treatment (p < 0.0004) and global well-being (p = 0.04). Desipramine was not superior to placebo on an intent-to-treat basis but was superior on a per-protocol basis.

The second study compared eight sessions of psychodynamic interpersonal therapy, paroxetine 20 mg daily, and medical treatment as usual in 257 patients with treatment-resistant FGID.58 The primary outcome measure was abdom-
inal pain, with secondary outcomes of global health-related QOL and costs. Outcome was assessed after 3 months of treatment and 1 year later. No significant difference was seen between the groups with respect to abdominal pain at 1-year follow-up, but there was significant improvement in health-related QOL in both treatment groups, as compared with treatment as usual. Furthermore, costs during the follow-up year were reduced in the psychotherapy group. The authors concluded that psychotherapy and paroxetine led to improved health-related QOL, as compared with usual treatment, at no extra cost.

Neither of these two large studies showed significantly greater improvement of abdominal pain after CBT or interpersonal psychotherapy versus control conditions. Both studies demonstrated improvement in the more global measures of well-being and health.

The Lackner review concluded that there was only mixed support for the idea that psychological treatments are most helpful in addressing comorbid psychological distress, a conclusion somewhat at odds with conventional wisdom. Several studies support the concept that psychological treatments are more effective in patients without psychological comorbidity.

Van Dulven et al. demonstrated that IBS patients receiving CBT showed sustained significant improvement in daily abdominal complaints, duration of pain, improved coping strategies, and reduced avoidance behavior. There were no significant differences between treated patients and wait-list controls at follow-up with respect to psychological well-being. A study of 149 moderate-to-severe IBS sufferers in a primary-care setting found that CBT plus the antispasmodic mebeverine was superior to mebeverine alone in reducing symptoms for up to 3 months and superior for work and social adjustment for up to 1 year. There was a variable effect on anxiety and depression and no clear relationship between change in bowel symptoms and change in anxiety or depression, suggesting that the benefit was independent of the latter. Both of the previously discussed large trials, by Drossman et al. and Creed et al., found that behavioral interventions were most effective in patients without concomitant depressive disorders. The existing literature supports the conclusion that psychological treatments for IBS appear to be less effective in patients with comorbid depressive disorder.

Patients with FGID often report histories of physical or sexual abuse, and this has been regarded as a marker for poor prognosis. Both large, randomized, controlled trials addressed the relationship between reported sexual abuse and outcome. Drossman et al. predicted that patients with a history of abuse (reported by 46% of their sample) would do better with CBT. However, abuse was not a significant predictor of outcome. The study by Creed et al. found that a history of abuse (present in 12% of patients) was actually associated with a better response to psychotherapy. It is possible that dynamic interpersonal therapy better addressed specific issues (such as current relationship problems) than did CBT and that these issues were associated with both IBS and previous abuse.

**Psychological Treatment in Routine Clinical Care**

Seasoned clinicians caring for patients no doubt practice some form of behavioral therapy, but this has neither been well studied nor well taught. A naturalistic study of 110 consecutive patients with functional abdominal pain attending an internal-medicine/gastroenterology clinic staffed by 13 doctors measured several psychological dimensions; 71 patients made two clinic visits, whereas the remaining 39 made three-or-more clinic visits. After the series of consultations, patients were generally less anxious, and this was associated with greater satisfaction. Patients also reported fewer fears of cancer and were more likely to attribute their symptoms to stress. These beneficial outcomes were not associated with number of visits, number of investigations, or demographic features. They were associated with the doctors’ correct perception of the patients’ attribution (stress versus physical illness) at the first consultation. Also, patients catastrophized less, and this outcome was associated with seeing the same doctor at different consultations.

This encouraging study suggests that there may be an opportunity for behavioral-medicine specialists to facilitate further development of the skills of practitioners with respect to CBT. Educational programs demonstrating improved patient outcomes and reduced healthcare utilization will aid in obtaining physician “buy-in.” This training should also be incorporated into gastroenterology training programs. These efforts would greatly increase the number of patients receiving appropriate first-line psychological care for their IBS.

**CONCLUSIONS**

It is not yet clear whether psychotherapy should be a primary or adjunctive therapy to treat IBS. It is also not clear which forms of psychotherapy are most appropriate for which patients. It is clear, however, that psychological treatments should not be limited to people with comorbid
psychiatric disorders. In fact, patients with IBS without comorbid psychiatric disorders may actually be more likely to benefit. Finally, psychological therapy already exists in routine clinical care and includes clear explanation and reassurance, which helps patients cope better with their disorder. There is a need for behavioral-medicine specialists to become involved in the training of gastroenterologists in the rudiments of CBT.

Because the number of patients with IBS is quite large, and the number of interested and available practitioners is small, referral for psychotherapy should be reserved for patients not responding to usual treatments. Psychiatric therapy should also be offered to those who have persistent pain, severely impaired health-related quality of life, a reported abuse history, poor coping, or dissatisfaction with medical treatment. Patients with concurrent depressive or anxiety disorder and persistent pain should be offered antidepressants.57,58,63

Antidepressants in FGID

Antidepressants have been used for the treatment of a variety of psychiatric and nonpsychiatric disorders. They have also been successfully used for the treatment of a wide variety of neuropathic pain syndromes.54,65 The analgesic effect is independent of the antidepressant effect, and analgesia typically occurs sooner than alterations in mood or anxiety. The time required to obtain analgesia is not predictable; it ranges from 1 day to 10 weeks. Finally, the doses of heterocyclic antidepressants used to achieve adequate analgesia in general seemed to be lower than those considered effective for the treatment of mood disorders. The mechanism by which antidepressants result in analgesia is not completely understood, but it appears to involve both opiate and glutamate receptors, given that the analgesic effects of various tricyclic antidepressants (TCAs) and selective serotonin-receptor uptake agents (SSRIs) are blocked by opiate antagonists and NMDA-receptor inhibitors.66,67

Although studies evaluating the efficacy of TCAs in IBS or visceral pain syndromes often have methodological limitations, TCAs are effective in treating visceral pain. Their efficacy is supported by a recent meta-analysis of published English-language randomized, controlled trials on the use of antidepressants for FGID.63 Applying quality criteria, 11 randomized, placebo-controlled trials of antidepressant therapy for FGID were identified in the literature. Studied agents included amitriptyline (three trials), desipramine (two trials), doxepin (one trial), clomipramine (one trial), trimipramine (two trials), and mianserin (one trial). The odds ratio for improvement with antidepressants was 4.2 (95% confidence interval: 2.3 to 7.9), with an average number needed to treat of 3.2 (95% confidence interval: 2.1 to 6.5). Also, the large trial of Drossman et al.,57 as discussed above, found that desipramine was not superior to placebo in an intent-to-treat analysis, but was superior in a per-protocol analysis, with response rates of 73% versus 49%, respectively.

Recent studies have produced conflicting results regarding the role of SSRIs. Kuiken et al.68 evaluated the effects of a 6-week course of fluoxetine 20 mg/day versus placebo in 40 nondepressed patients with IBS. Rectal balloon distension was used to assess visceral pain responses. Fluoxetine did not significantly alter the threshold for discomfort/pain, but it did significantly reduce the number of patients reporting significant abdominal pain among the subset of IBS patients considered hypersensitive to balloon distension at enrollment. Fluoxetine did not result in improvement in other digestive symptoms or measures of psychiatric distress.

Recent studies, however, are a bit more optimistic. Tabas and colleagues69 studied a group of patients with IBS whose symptoms failed to respond to a high-fiber diet alone (>25 gm of fiber daily). Only 26% of patients treated with the high-fiber diet regarded their condition as adequately improved. The remaining subjects were randomized to paroxetine or placebo: 63% of paroxetine-treated patients reported substantial improvement in well-being, compared with 26% of placebo-treated patients (p = 0.01). Abdominal pain, bloating, and social and work functioning did not significantly improve, although food avoidance and anxiety did. Paroxetine-treated patients were also more likely to want to continue with the study medication (84% versus 37%; p < 0.001). As previously discussed, the trial by Creed et al.58 comparing standard medical treatment, paroxetine, and interpersonal psychodynamic psychotherapy demonstrated that psychotherapy or paroxetine led to improved health-related quality of life, as compared with usual treatment, at no extra cost.

These studies highlight several important points. There clearly is a role for both TCAs and SSRIs in the treatment of FGID, but the usefulness of these agents is limited by adverse medication effects and patient tolerance. Treatment should be initiated at low doses, and both clinicians and patients need to be aware of potential adverse effects and be prepared to undertake either dosage adjustments or trials with other agents. No specific SSRI can be specifically recommended at present, although paroxetine...
is the most-studied at the moment. TCAs would seem better suited than SSRIs for the treatment of visceral pain.

CONCLUSIONS

FGID are common conditions in society and in clinical practice. These are symptomatically-defined disorders for which well established diagnostic criteria exist. These conditions are associated with considerable decrement in quality of life, increased medical costs, and absenteeism. They are best evaluated and treated by use of a biopsychosocial model that incorporates both assessment of digestive-tract structure and functioning and psychosocial assessment. Psychiatric therapies are helpful in improving overall well-being and quality of life and may be most effective in patients without significant psychiatric comorbidity. Antidepressants are helpful not only in treating comorbid anxiety and depressive disorders, but also because they have primary efficacy in improving outcomes in patients with FGID. Finally, there is a great need for the involvement of behavioral-medicine specialists in both the evaluation and treatment of patients with these disorders, as well as the education and training of practitioners to care for these patients.

References

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