UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER
DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER

INTERNAL MEDICINE GRAND ROUNDS
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IRRITABLE BOWELS, IRRITABLE PATIENTS, IRRITABLE DOCTORS

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Interests:
Dr. Harford was in the private practice of gastroenterology for about 10 years before joining the faculty of Southwestern Medical Center. This experience left him with an abiding interest in the managment of the most common of digestive problems, particularly the functional bowel diseases. He is the director of the GI endoscopy laboratory at the Department of Veterans Affairs Hospital, and has participated in clinical studies involving colon polyps, gastroesophageal reflux, and peptic ulcer disease.

INTRODUCTION

Why does irritable bowel syndrome (IBS) seem to be such a difficult problem both for patients and for physicians? In fact, IBS is not always difficult. Most people with IBS do not seek medical care, but accept their symptoms as a normal part of life and cope successfully with them. Of those who do seek care, many are satisfied that their physician makes the correct diagnosis, offers an acceptable explanation of their symptoms, and addresses their concerns. They improve with changes in lifestyle or medications, and adjust to their illness. However, physicians remember patients who are time-consuming, neurotic, demanding, and difficult to help. IBS does not fit the physician's biomedical model of illness. Despite obvious psychosocial problems, psychosocial explanations are met with anger and denial. The physician feels poorly trained to deal with what seems to be a psychiatric problem and frustrated with the need to do so. Some patients do not respond well to suggested life style changes or medications. Persistent symptoms and the lack of definitive tests leave the physician with nagging uncertainty and anxiety about the diagnosis. Subspecialist physicians often find themselves the objects of unrealistic expectations or the targets of the accumulated frustrations of multiple previous consultations. Patients, on the other hand, may experience symptoms which are chronic, distressing, and disabling, over which they have little control. They find physicians to be impatient, unempathic, and unable to explain their symptoms or reassure them. They feel devalued by the suggestion that mental illness is the cause of their problems. They are frustrated by repeated negative tests and by referrals to multiple different specialists. They are discouraged by treatments which do not help and often have unpleasant side effects.

The purpose of this Grand Rounds is to review current concepts of the pathophysiology of IBS and outline an approach to evaluation and management which may relieve some of the distress suffered both by patients and by physicians.

DEFINITIONS

Irritable bowel syndrome is a functional gastrointestinal disorder. The functional gastrointestinal disorders are chronic or recurrent gastrointestinal symptoms not explained by structural or biochemical abnormalities. "Not explained by structural or biochemical abnormalities" does not imply that there is no physiological basis for functional gastrointestinal diseases, and particularly does not mean that functional gastrointestinal diseases are psychiatric disorders. Rather it implies that an appropriate evaluation using standard diagnostic tests has disclosed no definite abnormalities.

In 1988 a committee of experts in functional gastrointestinal disorders met in Rome and developed a provisional classification system and set of symptom criteria based on their clinical and research experience (1). At present, the Rome classification system and criteria are based on consensus. They have not been empirically validated, but this work is underway. It is anticipated that revisions will occur.

FUNCTIONAL GASTROINTESTINAL DISORDERS: ROME CLASSIFICATI0N

A. Esophageal disorders
    A1. Globus
    A2. Rumination syndrome
    A3. Functional chest pain of presumed esophageal origin
    A4. Functional heartburn
    A5. Functional dysphagia
    A6. Unspecified esophageal disorder
B. Gastroduodenal disorders
    B1. Functional dyspepsia
        B1a. Ulcer-like dyspepsia
        B1b. Dysmotility-like dyspepsia
        B1c. Unspecified dyspepsia
    B2. Aerophagia
C. Bowel disorders
    C1. **Irritable bowel syndrome**
    C2. Functional abdominal bloating
    C3. Functional constipation
    C4. Functional diarrhea
    C5. Unspecified functional bowel disorder
D. Functional abdominal pain
    D1. Functional abdominal pain syndrome
    D2. Unspecified functional abdominal pain
E. Biliary disorders
    E1. Gallbladder dysfunction
    E2. Sphincter of Oddi dysfunction
F. Anorectal disorders
    F1. Functional incontinence
    F2. Functional anorectal disorders
        F2a. Levator ani syndrome
        F2b. Proctalgia fugax
    F3. Dyschezia
        F3a. Pelvic floor dysnergia
        F3b. Internal anal sphincter dysfunction
    F4. Unspecified functional anorectal disorder

IBS is considered to be a functional gastrointestinal disorder of the small intestine and colon. Given the absence of an abnormality which could be identified with standard diagnostic testing, Manning proposed a set of symptom-based criteria for the diagnosis of IBS in the 1970's. He gave a questionnaire containing 15 bowel-related symptoms to 109 patients referred to a gastroenterology or surgery clinic, then followed them for two years to determine which patients were eventually diagnosed as having IBS and which were found to have organic disease. Using discriminant function analysis he identified a set of

symptoms which reliably discriminated between the two groups (2). These are listed below:

Manning Criteria for IBS

- **Abdominal pain:**
  - **with looser stools**
  - **with more frequent stools**
  - **eased after stools**
- **Abdominal distention**
- **Passage of mucus per rectum**
- **Sense of incomplete evacuation**

The Manning criteria have been reviewed and revised by the Rome committees. The Rome criteria are similar to the Manning criteria (1)

Rome criteria for IBS

- **Abdominal pain or discomfort, present for at least 3 months**
  - **Relieved with defecation and/or**
  - **With change in stool frequency and/or in stool consistency**
- **Associated with 2 or more of the following, present at least ¼ of the time:**
  - **Change in stool frequency (<3/week or >3/day)**
  - **Change in stool form (loose/watery or hard/scybalous)**
  - **Difficult passage of stool (urgency or straining, feeling of incomplete evacuation)**
  - **Passage of mucus**
  - **Bloating or feeling of abdominal distention**

Although other functional gastrointestinal illnesses, such as dyspepsia, bloating, abdominal pain, and constipation are commonly called IBS and overlap with IBS in some patients, this Grand Rounds will focus primarily on patients who have IBS by the Rome criteria.

CLINICAL PRESENTATION

Patients usually note the onset of IBS symptoms in youth or middle age. However, it is not uncommon to elicit a history of frequent abdominal pain in childhood, and typical IBS symptoms dating to adolescence. Patients will often initially state that their symptoms began only a few days or weeks prior to the consultation, but when questioned carefully, will recall that similar symptoms have been present for much longer. They will often give a history of repeated diagnostic tests (such as barium X-rays), or surgery (such as appendectomy or cholecystectomy), done for abdominal pain, often with negative results. Other gastrointestinal symptoms, such as heartburn and dyspepsia, are common. Some patients have chronic non-gastrointestinal symptoms, such as recurrent headaches, dysmenorrhea, pelvic pain, urinary frequency and urgency, myofascial pain, fatigue, and sleep disturbances (3). Symptoms are chronic, waxing and waning in severity. About 1/3 of patients will experience remission in any given two year follow-up (4). All patients, by

definition, suffer from abdominal pain, but otherwise tend to present with one of three patterns:

IBS Symptom subtypes

- **Diarrhea predominant**
- **Constipation predominant**
- **Pain/Bloating-distention predominant**

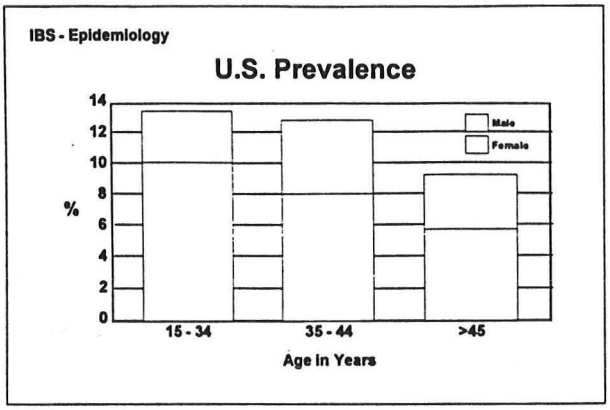
The pattern of alternating diarrhea and constipation is classic for IBS, and occurs in few other conditions. For purposes of evaluation and treatment, these patients are classified according to which symptom is most prevalent and troublesome.

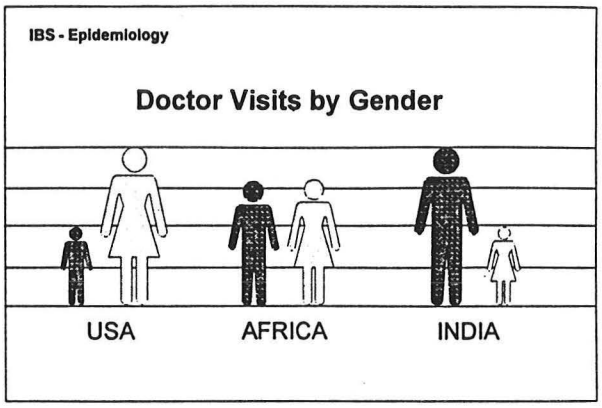
Bloating and/or distention is sometimes the object of bitter complaint by IBS patients and of skepticism among physicians. Patients relate that it may occur within minutes after a meal, with only trivial intake, or even a glass of water. It is a difficult symptom to explain on a physiological basis. It is often attributed to increased abdominal gas, but this cannot be demonstrated by KUB or gas washout studies. On the other hand, abdominal distention has been objectively demonstrated by CT scan (5). Some experts in the field have speculated that abdominal distention in IBS is due to reflex relaxation of abdominal wall muscles.

EPIDEMIOLOGY AND SOCIAL IMPACT

Symptoms of IBS are very common. U.S. and British population-based surveys using a strict definition of IBS have found the prevalence of IBS to be 9-18% of the adult population (4,6-8). We have limited information about the prevalence of IBS in non-Western countries. In some, such as Uganda, IBS is rare, but in Japan, China, and India, prevalence rates similar to those in the U.S. have been documented (9). Although symptoms of IBS are common, only between 20 and 50% of those with symptoms seek medical care (6-8,10). Several factors determine whether a person with IBS symptoms becomes an IBS patient or remains an IBS "nonpatient." Those with severe pain or diarrhea, and those with certain psychosocial characteristics are more likely than others to seek medical care for their symptoms. In the U.S. and Britain, IBS patients are more likely to be women than men by a factor of 2-3 to 1 (6-8). Among those patients with the most severe symptoms, the ratio of women to men is substantially higher. In a study of HMO patients with IBS, the ratio of women to men with mild symptoms was 2:1, but with severe symptoms it was 4:1 (11). The difference in prevalence between women and men is probably due to culturally-determined health care seeking, however, since in India, for example, the ratio is reversed (12). IBS affects adults of all ages, but symptom reporting declines slightly with age. In a U.S. householder survey, prevalence was 13% in both the 15-34 and 34-44 age groups, but fell to 9% in those older than 44(6). Over a two year follow-up period, about 35% of patients will lose their symptom criteria for IBS, while about 15% of the population will acquire IBS. Given that the number of those without IBS symptoms is greater than those with IBS symptoms at any given time, the number of IBS patients is stable over time (4).

The medical, economic, and social impact of IBS is high. Patients with IBS represent a large proportion of office medical practice: up to 12% of visits to primary care physicians and 28% of visits to gastroenterologists (13). Data from national surveys suggests that IBS accounts for about 3 million physician visits and more than 2 million prescriptions per year (7). Patients with IBS are about 1.5 times more likely than others to consult a physician for gastrointestinal symptoms, and about 4 times more likely to consult for non-intestinal symptoms (6). Medical costs attributable to IBS in the U.S. have been estimated at $8 billion (14). IBS patients have about 3 times the absenteeism rate than those with no bowel symptoms(6).





Epidemiology- Summary

- IBS symptoms present in 15% of the population, most non-patients
- Sociocultural factors affect health care utilization
- Women IBS patients outnumber men in the U.S., especially for severe IBS
- IBS represents 12% of primary care practice, 28% of GI practice

AN INTEGRATIVE MODEL OF IBS PATHOPHYSIOLOGY

In order to effectively evaluate and treat IBS, physicians and patients must conceptualize IBS as an integration of physiological and psychological components (15). The sections that follow review each of the various components:

- Motility- Patients with IBS develop motility disturbances in response to stress, meals, and other stimuli. These disturbances are not unique to IBS.
- Hypersensitivity- Patients with IBS are hypersensitive to visceral stimulation
- CNS dysregulation- Patients with IBS have abnormal CNS regulation of visceral sensation and autonomic function
- Stress and psychological problems- Stress and psychological problems interact in a complex manner with other factors, affecting illness experience
- Illness behavior- The patient's style of reacting to and coping with illness affects the clinical outcome of IBS.

MOTILITY

Colon

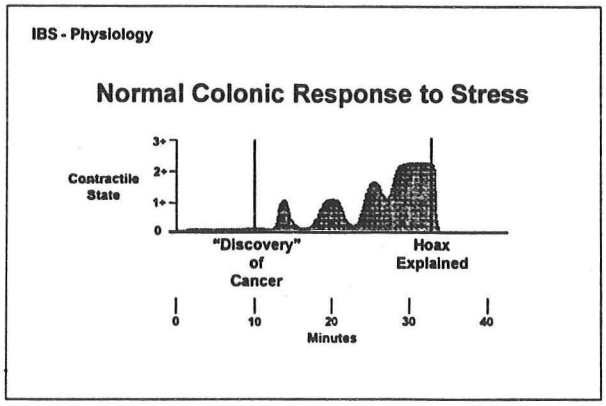
There is a large body of literature on motility abnormalities in IBS. Many early studies, flawed by methodological problems, have been refuted. For example, the observation of increased basal 3 cps myoelectrical activity in IBS (compared to the normal 6 cps) , which many of us still remember, has never been reproduced (16). Studies of basal colonic motility have failed to detect any significant differences between IBS patients and controls (17).

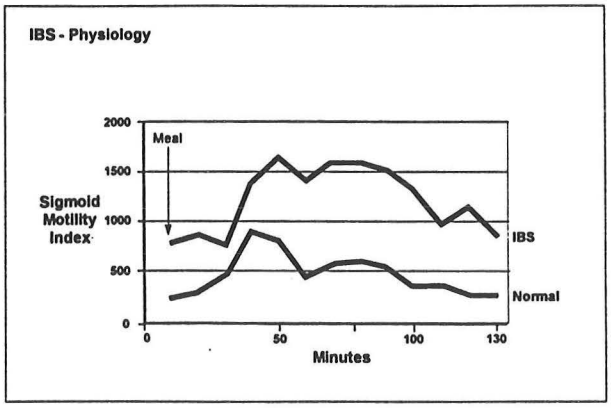
Stress and colonic motility

In the 1940's and 1950's Tom Almy studied the effect of stress in a series of unique experiments on healthy medical students and IBS patients. Using direct observation through a proctoscope and pressures recorded by balloon, he recorded changes in vascular engorgement, and rectal motility at baseline, then during various forms of induced stress, including hypoglycemia, pain, and emotional distress. One form of stress involved an elaborate hoax in which the investigator pretended to discover and biopsy a cancer. A marked increase in colonic motility was noted and persisted until the hoax was explained. He made similar observations in patients with IBS. For example Dr. Almy would initiate an unsympathetic discussion of an unpleasant topic, such as the death of a spouse. He noted that different forms of emotional distress, such as depression and anger, had different effects on colonic motor activity. In general, responses to stress were quantitatively greater in IBS patients compared to controls, but not qualitatively different. He proposed that patients with IBS are sensitive, immature, and do not adapt well to stress, and thus are more susceptible than normals to colonic spasm (18-20).

Postprandial colonic motility

Many IBS patients report an exaggerated "gastrocolic reflex" after meals. Several investigators have confirmed that the colonic motor response to a fatty meal is more pronounced and more prolonged in IBS patients than in normals. This abnormality can be reduced by pretreatment with anticholinergic drugs (21,22). These findings serve as the basis for treatment of IBS with anticholinergic drugs, which is modestly successful in some patients.





Small bowel

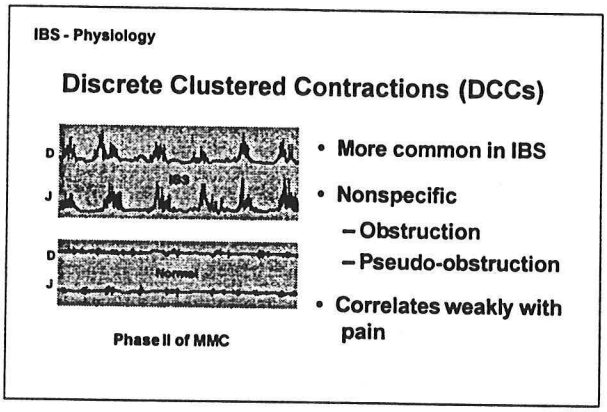
Development of small solid state catheters and miniature radiotelemetry capsules made possible accurate observations of small bowel motility both in the lab and in ambulatory conditions.

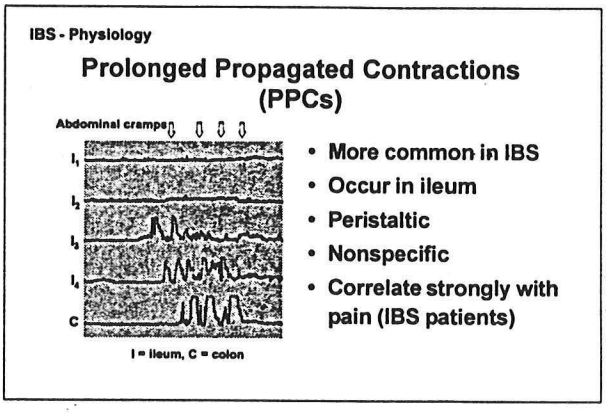
MMCs, DDCs, PPCs

The migrating motor complex (MMC) is a characteristic form of normal small bowel motility which travels down the gut at periodic regular intervals during the fasting state. The periodicity of the MMC is shorter in IBS patients with diarrhea compared to both normals and IBS patients with constipation (23). Discrete clustered contractions (DDCs) are another motor pattern found in the jejunum, consisting of short bursts of rhythmic contractions. In one study DCCs were found to be much more common in IBS than in controls(24). DCCs are not specific to IBS. They are normally seen in both the proximal duodenum and distal ileum, and are a feature of intestinal obstruction and pseudo-obstruction. Prolonged propagated contractions (PPCs) are high-amplitude propulsive waves which are a normal feature of the distal ileum, and are also found to be more common in IBS patients than in controls (24).

Stress and small bowel motility

The MMC can be influenced by a variety of forms of stress in both normals and patients with IBS. Using radiotelemetry capsules in the upper small bowel one study showed that the stress of driving in heavy traffic, for example, was much more likely to result in abolition of MMCs in IBS patients than in controls. The same patients often developed a pattern of irregular motor activity under the same stress (23).





Motility summary

- The large bowel and small bowel are affected.
- There is increased motor reactivity to stress, meals.
- The abnormalities are not specific to IBS.

HYPERSENSITIVITY

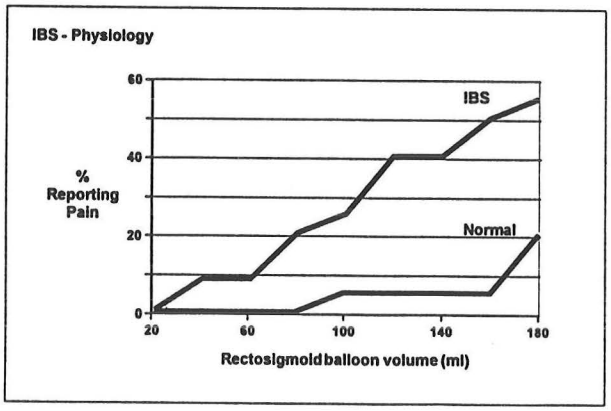
EXPERIMENTAL EVIDENCE

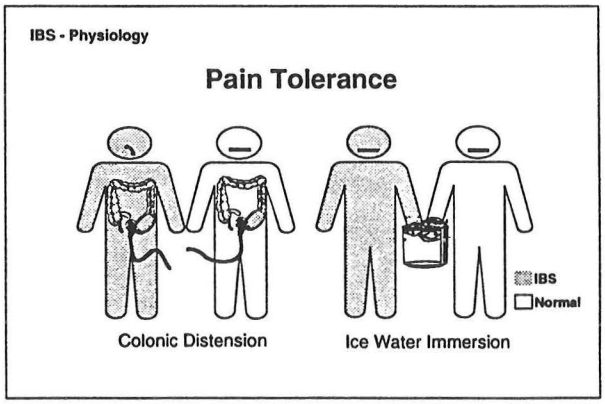
IBS patients often have tenderness on palpation of the colon during physical examination. Many experience intense pain on air insufflation of the colon during

sigmoidoscopy. These clinical observations have been confirmed by the finding that IBS patients are more likely than normals to report pain when a balloon is inflated in the distal colon (25-28). This hypersensitivity to distention is not limited to the colon, but may also be demonstrated in the small bowel (29,30). Hypersensitivity in IBS is also supported by the observation that IBS patients may experience pain with small bowel motility patterns, such as MMCs, DDCs, and PPCs, which are not painful for others (24,31,32). Hypersensitivity to distention has been reported in other functional bowel diseases. In non-cardiac chest pain, as I discussed in a previous Medical Grand Rounds (33), typical chest pain can be reproduced in the majority of patients by balloon inflation in the esophagus, and pain occurs at much lower volumes than in controls (34). Similar observations have been made in patients with another functional gastrointestinal disease, non-ulcer dyspepsia (35). Visceral hypersensitivity in IBS is not necessarily limited to the small bowel and colon. It has been found that many IBS patients also have esophageal hypersensitivity. Conversely, many patients with non-ulcer dyspepsia have rectosigmoid hypersensitivity (36).

Balloon distention of the small bowel and colon may cause secondary contractions. It might be supposed that it is the contractions which cause pain, but available studies do not show correlation between the degree of induced motility and pain (37). Another possibility is that IBS patients have decreased intestinal compliance. If this were true, mechanical pain receptors in the intestinal wall might be more intensely stimulated for any degree of inflation. This hypothesis has also been tested, but no compliance abnormalities have been documented either in the small bowel or the colon (27,30,37).

Hypersensitivity in IBS is not part of a generalized decrease in pain tolerance. Several studies have shown that IBS patients who are hypersensitive to rectal balloon distention have either a normal or even greater than normal tolerance for somatic pain, such as immersion of a hand in ice water or electric shock to the skin (30,37,38).





Not all IBS patients have a lowered threshold to pain with rectosigmoid distention at baseline, but almost all can be documented to have some abnormality of visceral pain processing(26,39,40). In one study, some patients who did not have a lowered threshold to first report of pain reported increased intensity of pain upon reaching threshold. Altered patterns of pain referral were also noted (39,41). Normals refer the discomfort of rectal

distention only to sacral segments, whereas IBS patients often refer discomfort also to the suprapubic or periumbilical areas. When all these abnormalities were taken into account, 94% of IBS patients had abnormal processing of visceral pain in this study (26).

Hypersensitivity may also be induced in IBS patients. In another study, the same investigators placed balloons in both the rectum and sigmoid colon of IBS patients and controls. Baseline sensitivity to rectal distention was measured. Of the IBS patients, 36% had normal baseline thresholds. Investigators then administered a series of ten rapid high pressure distentions of the sigmoid balloon. After a rest, the threshold to rectal distention was retested. They found that all of the IBS patients developed rectal hypersensitivity manifested by either 1) a decrease in threshold for pain with rectal distention, 2) an enlarged referral pattern, or 3) lower abdominal discomfort persisting at least 45 minutes after the end of the experiment (41). This increased susceptibility to induction of hypersensitivity might explain how meals or stress, which may cause repetitive contractions, could lead to symptoms in IBS patients.

It is possible that the motor and secretory abnormalities in IBS are secondary to a primary abnormality in visceral afferent processing. Visceral afferents form reflex circuits with secretomotor efferents at multiple levels, including within the enteric nervous system itself, at the level of sympathetic ganglia, and within autonomic nuclei of the brainstem. At each level, disturbances of visceral afferent input might lead to either hyper or hypomotility as well as changes in secretory activity, thus explaining not only pain, but changes in bowel habits.

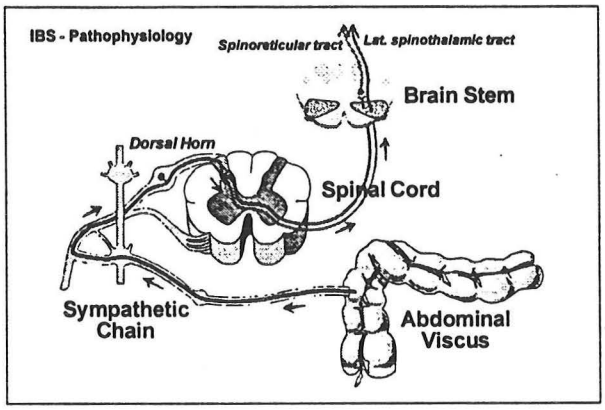
OVERVIEW OF VISCERAL PAIN

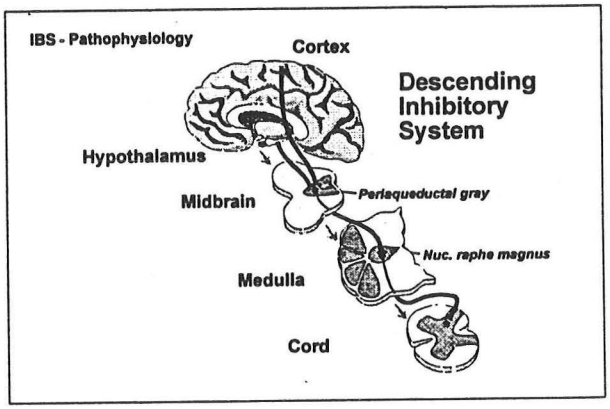
Visceral pain afferent input is mediated primarily by afferents carried in the thoracolumbar sympathetic system. These have their proximal synapses on second order neurons in lamina I and V of the dorsal horn of the spinal cord. In the dorsal horn both somatic and visceral afferents converge on the same second order neurons, which is the basis for referral of gut pain to somatic segments. There are relatively few visceral afferent pain fibers compared to somatic afferents, and visceral afferents project through several spinal cord segments. Thus visceral pain is poorly localized. From the dorsal horn second order visceral afferents cross the midline and ascend in the spinoreticular and lateral spinothalamic tracts. Like afferents carried in the vagal system, these form reflex circuits in the autonomic nuclei of the brainstem.

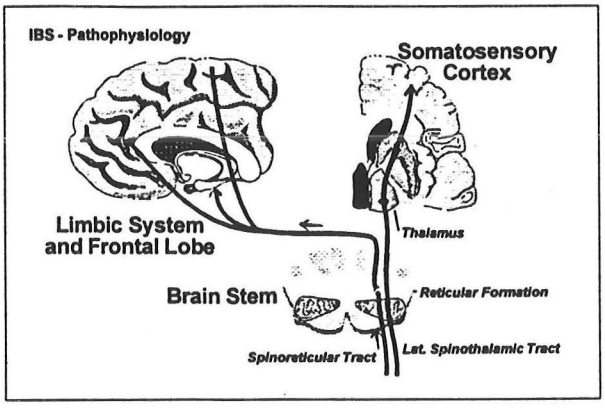
Third order neurons from the spinothalamic system project to the somatosensory cortex, providing the sensory discriminative quality to visceral pain (quality, location). Spinoreticular tract fibers project to the limbic system, including the insula, anterior cingulate gyrus, and prefrontal cortex. These areas contribute cognitive, emotional, and memory components to visceral pain.

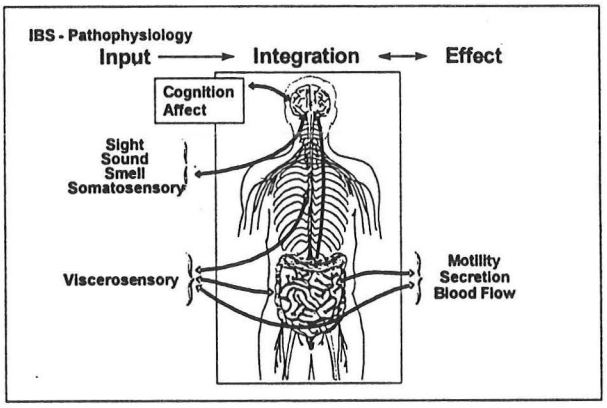
Higher order central nervous structures not only mediate the conscious experience of visceral pain but also integrate the behavioral and autonomic secretomotor response to pain, and provide descending modulation of afferent input. From cortical, limbic, and

hypothalamic centers, descending fibers project to the motor nuclei of the vagus and to the locus ceruleus, the major catecholinergic center in the brainstem. The endorphin mediated analgesia system (EMAS) is the principal descending pain modulation network. Originating in the periaqueductal gray (PAG) of the midbrain, it receives input from the cortex and hypothalamus. It descends through the nucleus raphe magnus in the medulla, forming reflexes with autonomic centers, and synapses on the dorsal horn, where it acts as a gate for ascending pain input. Inhibitory activity of the EMAS is facilitated by serotonin and possibly norepinephrine.









ORIGINS OF HYPERSENSITIVITY IN IBS

Peripheral afferent hypersensitivity

Tissue injury and inflammation may lead to peripheral hypersensitivity (42,43). However, there is little or no experimental evidence to suggest that this occurs in IBS. There have been reports of IBS occurring after enteric infections. In one study of 75 patients with salmonella gastroenteritis, however, psychological factors seemed to distinguish those who recovered without sequelae from the 20 who developed IBS symptoms later (44).

Central hypersensitivity

Central hypersensitivity might originate in the dorsal horn of the spinal cord, in the descending pain modulation system (EMAS), or in the cortical/limbic system. Abnormal spinal processing of pain is suggested by the observation of expanded and abnormal

referral of pain from rectal distention (41). Primary dysfunction of the EMAS is another possibility, but this is difficult to study experimentally. PET scanning has been used to study processing of pain at the cortical/limbic level. Normal subjects show activation of the anterior cingulate cortex (ACC) in response to pain (or in anticipation of pain!), whereas IBS patients do not (45). The ACC is an opiate-rich area of the limbic system which regulates sensory input through the EMAS. It is involved in regulation of autonomic and endocrine functions. It is also important in assigning an affective quality to pain and in conditioned emotional learning (46). Central visceral hypersensitivity would be compatible with altered autonomic regulation, an increased prevalence of extraintestinal pain syndromes in IBS, and other evidence of generalized CNS dysfunction, such as increased REM sleep (47).

Hypervigilance

In contrast to normals, IBS patients respond to actual or anticipated rectal balloon distention with activation of the prefrontal cortex, an area which is involved in increasing alertness and vigilance. These findings fit with the clinical observation that many patients with IBS seem to be hypervigilant. They have an increased focus on body sensations and a bias toward the reporting of negative sensations. Hypervigilance may be a major component of hypersensitivity in IBS. Chronic stress, psychological disorders, and certain types of traumatic life events may lead to a chronic state of hypervigilance which may affect CNS pain processing.

Hypersensitivity summary

- IBS patients are hypersensitive to various motility patterns as well as colon and small bowel distention.
- IBS patients do not have a reduced tolerance for somatic pain.
- Increased pain intensity and abnormal pain referral can be induced by previous stimulation.
- Hypersensitivity may cause secondary secretomotor dysfunction
- Hypersensitivity may originate through abnormal cortical/limbic pain regulation
- Hypervigilance contributes to hypersensitivity

AUTONOMIC DYSREGULATION

There is only a modest amount of research available on autonomic function in IBS (48-51). Abnormal processing of visceral afferent input may contribute autonomic dysregulation and secretomotor symptoms such as diarrhea or constipation, depending on the resulting autonomic balance Primary afferents may form reflex loops through connections in the paravertebral ganglia of the sympathetic nervous system, or through connections with vagal motor nuclei in the brainstem. The EMAS also connects with the autonomic nuclei as it traverses the brainstem. The cortical/limbic system, through the ACC, is also involved in modulation of autonomic and endocrine responses. Stress, psychological problems, and hypervigilance may cause autonomic arousal. The increased autonomic secretomotor response may in turn cause increased symptoms, and thus initiate a vicious cycle.

PSYCHOLOGICAL FACTORS IN IBS

Prevalence of Stress and Psychopathology

When compared with other medical patients or with normals, IBS patients do have a higher overall prevalence of stress reporting, and psychological problems.

IBS non-patients are persons who fulfill the Manning criteria for IBS, but who have never sought medical care for IBS. In a study comparing normals, IBS non-patients, and IBS patients, the investigators used standard measures of personality characteristics (MMPI), mood, stressful life events, and illness behaviors to assess psychological health. In general, IBS non-patients were not different from healthy controls with regard to psychological health. IBS non-patients did experience more negative life events than normals, but showed greater coping capabilities and psychological stability under stress than IBS patients (52). Similar results were found in a community survey of these same groups on a measure of psychological distress (53). In contrast, the prevalence of psychopathology in referral practices has been reported to be between 40 and 90% (54). The prevalence of psychopathology is higher in IBS than in Crohn's disease, which leads to comparable symptoms and disability.

Types of psychopathology

Most studies report an increased prevalence of stressful events in IBS (54). However, it is interesting to note that in the study reviewed above, IBS patients reported fewer stressful life events and reported these as less severe than the other groups. This fits with a clinical impression that some IBS patients who have very stressful life circumstances deny experiencing subjective stress, and make no connection between stress and IBS symptoms.

The most commonly reported psychiatric diagnoses associated with IBS are anxiety, depression, and somatization (55). Panic disorder, although much less common, is important, since treatment can make a major impact. It is clear that although the prevalence of psychiatric disorders is increased in IBS, there is no one psychiatric abnormality or profile characteristic of IBS.

Abuse and IBS

A history of traumatic life experiences is common among patients with severe and refractory IBS. In a specialized referral practice, one investigator reported that 44% of patients had suffered from abuse, largely sexual (56). The link between IBS and abuse was confirmed by a Mayo Clinic group in a population survey of persons between the ages of 30 to 49. They found that patients with a history of abuse had twice the prevalence of IBS as those without (57). The prevalence of a history of any type of abuse was surprisingly high: 41% in women and 11% in men. A similar prevalence of domestic violence has been shown in other populations (58). A history of abuse is known to physicians in only 15-20% of cases (56). Patients with a history of abuse are not only more likely to suffer from IBS, but also have a higher prevalence of psychiatric problems, substance abuse, and physical symptoms, including headaches, chest pain, pelvic pain, and sleep difficulties (58). They have an increased frequency of physician visits, hospitalizations, surgery, and less

favorable medical outcomes. This relationship between functional bowel disease and traumatic life events has also been documented in military veterans of post-traumatic stress disorder (59).

There are a number of ways in which abuse may contribute to the development of severe IBS. It may produce a chronic state of hypervigilance and autonomic arousal. Psychiatric consequences of abuse contribute to ongoing stress and prevent successful coping. Since the history of abuse is seldom disclosed by patients, physicians have an obligation to attempt to elicit this history under appropriate circumstances, and to make provisions to refer patients when needed (60).

Pychological factors- summary

- IBS non-patients are similar to normals.
- IBS patients have an increased prevalence of psychological problems, but no specific pattern
- A history of traumatic life events, particularly abuse, is common in severe IBS

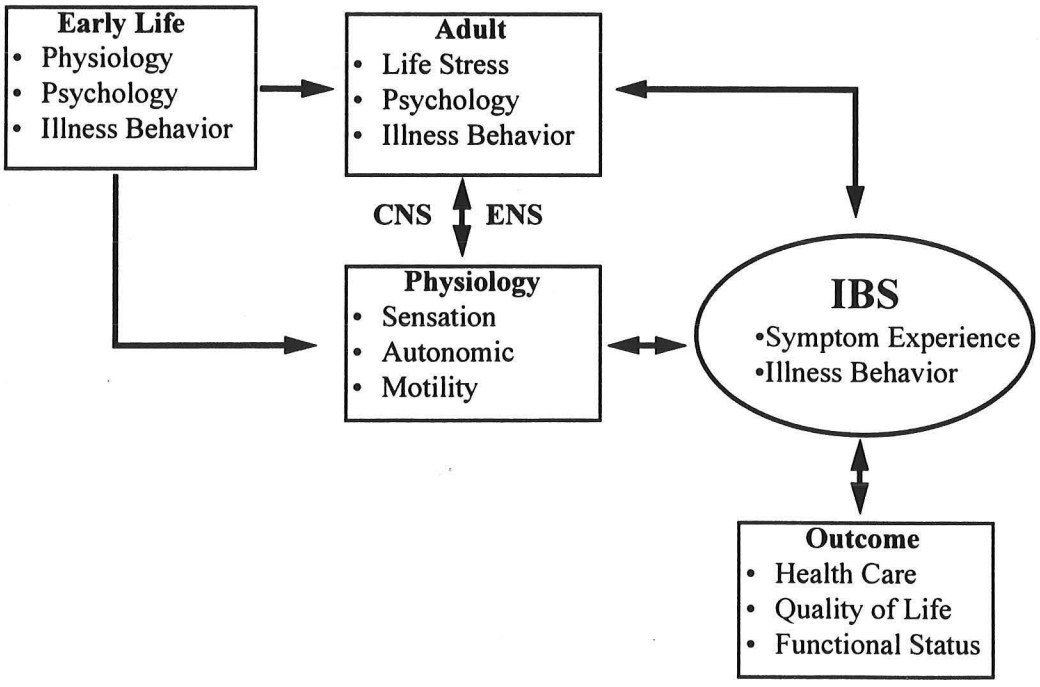
ILLNESS BEHAVIOR

Illness behavior is the manner in which symptoms are perceived, reported, and acted on. Illness behavior is learned primarily through childhood family experiences. Features of abnormal illness behavior include:

- symptoms or disability disproportionate to detectable disease (for example, always rating pain as 10 on a 0 to 10 scale);
- a relentless search to validate the presence of disease;
- placement of responsibility for health care with the physician;
- a sense of being entitled to be cared for by others;
- adoption of the sick role and efforts to avoid health-promoting behavior (61).

Abnormal or maladaptive illness behavior affects the presentation and outcome of IBS

A CONCEPTUAL MODEL OF IBS



The concepts reviewed above can be summarized in a conceptual model of IBS:

- Genetic factors may determine susceptibility to abnormal physiology. Psychological problems may have their origin in family dynamics. Illness behavior may also be learned in the family
- Adult life stress and psychological problems interact with abnormal physiology, including visceral hypersensitivity, autonomic arousal, and abnormal motility
- IBS symptom experience and illness behavior interact with abnormal physiology as well as life stress and psychological problems
- The outcome of IBS (health care utilization, quality of life, and functional status) is the product of the symptom experience and illness behavior, but also affects them in turn.

DIAGNOSIS AND MANAGEMENT

Since no specific and readily evaluable physiological marker has been found for IBS, the traditional approach to the diagnosis has been to make every effort to exclude other identifiable organic diseases. Typically, a patient with IBS symptoms might have extensive blood and stool studies, as well as endoscopic or radiographic imaging of the upper and lower gastrointestinal tract. Persistent symptoms or referral to another physician is likely to result in new diagnostic tests or repetition of studies already done.

SYMPTOM-BASED DIAGNOSIS

A consensus has evolved among experts in the field of functional gastrointestinal disease on a diagnostic strategy which begins with symptom-based diagnosis, using the Manning or Rome criteria. After the initial interview and examination, general screening tests are supplemented with limited specific screening tests based on the predominant symptom. General treatment recommendations are made, and specific treatment is addressed to the predominant symptom. Follow-up and reassessment is planned at 3-6 weeks(9).

INITIAL INTERVIEW AND EXAMINATION

⇩

GENERAL SCREENING TESTS
SPECIFIC SCREENING TESTS BASED ON PREDOMINANT SYMPTOM

⇩

GENERAL TREATMENT
SPECIFIC TREATMENT BASED ON PREDOMINANT SYMPTOM

⇩

FOLLOW-UP AND RESSESSMENT AT 3-6 WEEKS

INITIAL INTERVIEW AND EXAMINATION

The physician should have several objectives during the initial history/interview:

- Establish a symptom-based diagnosis and determine the predominant symptom;
- Determine the duration, severity, and course of symptoms;
- Explore psychosocial issues and patterns of illness behavior;

- Elicit and address the patient's concerns and expectations;
- Educate.

Establish diagnosis and predominant symptom

Either the Rome Criteria or the Manning Criteria may be used for the purpose of establishing a diagnosis. The Manning Criteria are as sensitive and specific as many of the objective diagnostic studies in common use for other diseases. The subsequent approach will depend in part on the level of confidence with which the diagnosis is established. The predictive power of the Manning criteria depends on the age and sex of the patient, and on the number of criteria present (62).

Predicted % Probability of IBS

	# MANNING Criteria	AT AGE 20 yrs	AT AGE 40 yrs	AT AGE 60 yrs
Men				
	Any 2	51	38	26
	Any 4	72	61	48
	Any 6	87	80	70
Women				
	Any 2	64	51	38
	Any 4	82	73	61
	Any 6	92	87	80

If it is determined that the patient's symptoms are compatible with IBS, the subsequent approach depends on the predominant symptom pattern. Different diagnostic studies and therapeutic trials are indicated for patients with predominant pain/ bloating-distention, predominant diarrhea, or predominant constipation. Stool examination for parasites would be appropriate for a patient with diarrhea, while a plain abdominal x-ray might be important in a patient with predominant pain and abdominal distention.

Psychosocial and illness behavior assessment

An effective initial interview with an IBS patient requires the ability to efficiently elicit not the standard medical history, but also psychosocial history. Some patients have difficulty relating to others, which contributes to their psychosocial problems, and also makes the interview difficult. The clinical and interpersonal skills of the physician may be seriously challenged. Physicians may find themselves "irritable" when seeing an IBS patient because they do not have the time and energy to conduct the visit properly. One solution to this problem is obtain to preliminary information and reschedule the patient for a longer visit within a few days. The first physician-patient interaction is important for the long-term outcome. Investigators at the Mayo clinic conducted a chart review of 112 patients diagnosed with IBS a number of years previously. They found that notations in the record regarding 1) identification of patient concerns, 2) explanation of the basis for

symptoms, and 3) reassurance correlated with a reduced number of subsequent visits and health care utilization (63).

Patient concerns

It is important to explicitly elicit and address the patient's concerns and expectations. For example, a patient with many years of IBS may consult a physician not because of an exacerbation of symptoms, but because a relative recently died of colon cancer. That patient needs to be reassured that he or she does not have colon cancer, and may not require any treatment for IBS symptoms. Fecal incontinence is a concern which may not be brought up by patients because of embarrassment, but which may be completely incapacitating. In any patient presenting with a complaint of diarrhea, it is important to specifically inquire about incontinence.

Education

Education is part of the therapy of IBS. The physician should explain the basis for the patient's symptoms. This should be done in a manner that is understandable and acceptable to the patient. IBS patients are unlikely to accept any explanation which tends to devalue them or trivialize their problems. Any explanation which explicitly or implicitly suggests that "There's nothing wrong" or "It's all in your head" will not be well-received. The model of visceral hypersensitivity is free of negative implications regarding patient worth and mental health, but allows for the introduction of psychosocial factors. At the first interview, many patients are not ready to accept any implication that stress or psychological problems are their primary problem. This concept often needs to be introduced gradually.

Role of the review of systems

The review of systems is a useful tool during the initial interview of a patient with IBS. A history of frequent physician visits, multiple previous diagnostic studies, and multiple surgical procedures suggests the possibility of abnormal illness behavior. Chronic headaches, myofascial pain, pelvic pain or urinary symptoms, fatigue, and sleep disturbances also suggest that the IBS symptoms are part of a more generalized pattern of illness behavior in which psychosocial factors may play an important role. Patients are quite willing to talk about the impact of IBS symptoms on their quality of life and level of functioning. Characteristic coping styles can be elicited. Family, work, or other sources of stress should be identified, although some patients will deny any role of stress in their symptoms. Many physicians are quite good at detecting possible psychological problems during an interview, either by reading the patient's mood or noting how the patient relates to them. In particular, excessive dependency, hostility, or both are sometimes apparent, making the interview difficult, but also suggesting that the patient may have trouble with other interpersonal relationships.

Physical examination

A physical examination will not reveal any specific abnormalities in IBS, but the "laying on of hands" is likely to reassure and comfort the patient. Tenderness of the sigmoid colon is not uncommon, nonspecific.

GENERAL SCREENING TESTS
SPECIFIC TESTS BASED ON PREDOMINANT SYMPTOM

A limited and conservative initial evaluation is recommended (9). A reasonable panel of general screening tests includes a CBC, blood glucose, thyroid panel and stool tests for occult blood. In patients less than 40 years old, a sigmoidoscopy should be done. Patients over the age of 40 presenting for the first time for evaluation, or those with a family history of colon cancer or inflammatory bowel disease, should have sigmoidoscopy plus barium enema, or colonoscopy.

Other specific tests are based on the predominant symptom. Patients with diarrhea should have a stool examination for leukocytes. Stool examination for ova and parasites is often done, but the yield is small in the absence of epidemiological risk factors. Stool cultures are not helpful for chronic diarrhea. Patients with predominant complaints of pain, bloating, and distention should have a plain abdominal x-ray to help exclude bowel obstruction.

Differential diagnosis of IBS

The differential diagnosis of IBS is extensive, but most possibilities can be addressed with a careful history and a small number of screening tests.

Food intolerance	Other GI conditions
Adverse effects of medications	Neoplasm
Infection	Intestinal obstruction
Giardiasis	Pseudo-obstruction
Amebiasis	Functional constipation
AIDS-associated infection	Functional anorectal disorder
Inflammatory bowel diseases	Psychiatric condition
Crohn's disease	Somatization
Ulcerative colitis	Panic disorder
Microscopic colitis	Endometriosis
Malabsorption	Endocrine disorders

Food intolerance

Many patients relate a history of food intolerance. Fatty foods are commonly troublesome, and this has a physiological basis. However, some patients will progressively restrict their intake to fewer and fewer foods in an attempt to gain control of symptoms. These patients attribute causality to a coincidental relationship of symptoms with foods. Some become obsessed with purported food allergies or hypersensitivity. True food allergy or hypersensitivity as a basis for IBS symptoms is very rare (64,65).

Lactose, fructose, and sorbitol

Studies have shown that the prevalence of lactose, fructose, and sorbitol malabsorption in IBS patients is no different from that among normals. However, the development of abdominal distress from such disaccharide malabsorption is much more

common in IBS patients than controls. In particular, the combination of fructose and sorbitol causes more than additive symptoms (66,67). These sugars are present in many foods and some medications. Restricting intake was of benefit in 40% of IBS patients in one study (66). A trial of lactose restriction may be helpful in some patients. However, IBS and lactose malabsorption commonly coexist, and lactose restriction may improve but not cure the patient's symptoms. A few patients with constipation predominant IBS will take large amounts of bran, which improves their stool consistency, but at the expense of worsening symptoms of gas and bloating because of bacterial fermentation of the excess bran.

Sources of Fructose, Sorbitol

FRUCTOSE	SORBITOL
Soft drinks	Sugar free gum
Honey	Diet foods
Apples	Fruit juices
Grapes	Pears
Pears	Peaches
Prunes	Prunes
Cherries	Wine/vinegar
Dried figs, dates	Elixirs

Inflammatory bowel disease

Fever, weight loss, anemia, Hemoccult positive or bloody stool, colitis on sigmoidoscopy or other "red flags" are usually present in Crohn's disease or ulcerative colitis. If the symptoms are mild, a 3-6 week delay in diagnosis is not of serious consequence. On the other hand, in microscopic colitis the endoscopic appearance of the mucosa is normal. Abnormalities are detected only by biopsy. This condition is uncommon, and it is probably not cost effective to insist on taking mucosal biopsies on every patient with diarrhea at the initial examination.

Endometriosis

Endometriosis may cause intermittent abdominal pain and altered bowel habits. The diagnosis is difficult to make short of laparoscopy. However, it is likely that in a substantial number of patients in whom endometriosis is discovered, symptoms are due at least in part to coexistent IBS. Clinicians should consider this if the patient does not respond readily to treatment for endometriosis.

Screening tests- summary

- General
    - CBC, glucose, thyroid panel, FOB
    - Sigmoidoscopy
    - BE or colonoscopy for older, + fam. Hx.
- Specific
    - Diarrhea: stool WBCs, ?ova and parasites
    - Pain/bloating: plain abdominal x-ray

GENERAL TREATMENT
SPECIFIC TREATMENT BASED ON PREDOMINANT SYMPTOM

Education and reassurance are an integral part of treatment. Other general measures include advice about the avoidance of fatty and gas-producing foods, large meals, excessive caffeine, fructose, and sorbitol. For patients who acknowledge a role of stress in their symptoms, it is convenient to have access to pamphlets or tapes on relaxation techniques. A simple regular exercise such as walking will relieve stress for many patients.

Specific treatment trials should be based on the predominant symptom. Diarrhea often responds to Loperamide in a dose of 2-4 mg up to four times a day, and this medication has no potential for addiction (68). Constipation may respond to increased fiber, although evidence of major benefit is meager. Calcium polycarbophil, psyllium, or methycellulose preparations are convenient and less likely to worsen bloating than bran, which does not help IBS patients (69,70). Despite traditional reluctance to endorse regular laxative use, there is no evidence that modest use of osmotic laxatives such as magnesium preparations is harmful. Pain or distention/bloating may improve with disaccharide restriction. Many physicians prescribe antispasmodics such as dicyclomine or hyoscyamine, taken before meals, and find them helpful for individual patients. However, of the antispasmodics proven to be more effective than placebo for IBS (see below), none are available in the United States (71). An alternative for patients with moderate to severe pain/distention-bloating is a low dose of a tricyclic antidepressant, which will be discussed below.

Initial treatment- summary

- General
  - Education, reassurance
  - Diet changes
  - Stress reduction
- Specific
  - Diarrhea: loperamide
  - Constipation: fiber, osmotic laxatives
  - Pain/bloating: antispasmodic; ?tricyclic

FOLLOW-UP AND REASSESSMENT IN 3-6 WEEKS

A follow-up appointment should be made to reassess the patient's condition within 3-6 weeks. If the patient has improved or is no worse, the decision not to do further studies can be made with more confidence. If the patient has not improved at the follow-up visit, the physician can 1) reconsider the original diagnosis, 2) change pharmacotherapy, or 3) explore psychosocial factors in more depth.

1) Reconsider the diagnosis

If there is concern about the diagnosis, additional specialized studies may be done which are targeted to the predominant symptom.

If diarrhea is the predominant symptom, most gastroenterologists recommend colonoscopy and mucosal biopsies, and a small bowel barium x-ray if the colonoscopy is normal. Stool collections are often avoided because they seem distasteful and inconvenient, but a 48 to 72 hour collection can provide much useful information in a cost-effective manner. Frequent small volume stools (<300 cc/day) are typical of IBS. Stool lipids will be abnormal in any of the malabsorption syndromes. Measurement of osmolarity, electrolytes, and a laxative screen on large volume stools will help to guide subsequent studies. When the patient continues to complain of diarrhea on follow-up, the physician should remember to inquire about incontinence.

Persistent constipation is usually due to functional colonic inertia or pelvic floor dysnergia. A barium enema is often done, but the yield is low in cases of simple constipation. A colon transit study done with radio-opaque markers (Sitzmark) will help to differentiate between the two main potential problems. The main value of this approach is to identify patients with possible pelvic floor dysnergia. These patients can be evaluated in a referral center and may benefit from anorectal biofeedback (72).

When pain and bloating/distention are felt to require further evaluation, a small bowel barium x-ray is the most useful study to exclude obstruction or Crohn's disease.

What is the risk of missing a serious illness if the Manning Criteria and a conservative evaluation are used to make the diagnosis of IBS? In six studies where this approach was used, the rate of missed diagnoses was very low, ranging from 0 to 5%, when patients were re-evaluated a minimum of two years later. Only one cancer was missed (63,73,74).

Reconsider the diagnosis- summary

- Diarrhea: colonoscopy with biopsies; stool collection
- Constipation: ?barium enema; stool marker study
- Pain/bloating: small bowel x-ray

2) Change in pharmacotherapy

For diarrhea which does not respond to loperamide, many authors recommend a trial of cholestyramine (4 gm before meals), although this has not been formally studied in IBS.

When constipation does not respond to increased fiber or modest doses of osmotic laxatives, PEG-based laxatives (Colyte or Golytely), 1-2 glasses per day, may help. The prokinetic cisapride (10 mg before meals and at bedtime) has been shown to have modest benefit in some patients. The prostaglandin misoprostil (200 mcg four times a day) is used for gastric cytoprotection in patients on NSAIDs, but diarrhea is a common side effect, and some authors have recommended a trial of this for refractory constipation (72). Sorbitol and lactulose are also often used, but in IBS patients they are prone to worsen pain and distention/bloating.

Pain or distention/bloating not responsive to antispasmodics may improve with a low dose of a tricyclic antidepressant, as mentioned above. Selective serotonin re-uptake inhibitors (SSRIs) have also been used recently, although there is no published literature on their effectiveness (see below).

Change pharmacotherapy- summary

- Diarrhea: cholestyramine
- Constipation: PEG laxative
- Pain/bloating: tricyclic, ?SSRI]

3) Explore psychosocial factors

The follow-up visit is an opportunity to further explore psychosocial factors if the patient has not responded in a satisfactory manner. The patient may be more open, and the physician more prepared to approach the subject. One approach is to encourage the patient to keep a symptom diary, such as that shown below, for 2-4 weeks (61). A review of this diary can set the stage for discussion of psychosocial factors and referral for psychological treatments.

Symptom Diary

Date/ Time	Symptom Severity (1-10)	Associated Factors	Emotional Response	Thoughts/ Cognition
(e.g.)	pain, diarrhea	diet, activity, stress	angry, sad, anxious	out of control, hopeless

PHARMACOTHERAPY

The design and execution of proper clinical trials of drugs for IBS is difficult for a variety of reasons, including variation in the definition of IBS, difficulties in blinding, a large placebo response, inadequate duration of treatment, and inconsistent measures of efficacy. The author of one meta-analysis concluded that "not a single study offers convincing evidence that any therapy is effective in treating the IBS symptom complex" (75). Whether this pessimism is warranted is open to question, but physicians should approach pharmacological treatment of IBS with a degree of skepticism.

PLACEBO RESPONSE

In published studies of treatment for IBS, placebo response rates have been found to be high, between 30 and 80%. This makes it difficult to determine the benefit of a drug. Interestingly, in the study in which the placebo response rate was 33%, the medication was mailed to patients, illustrating that a physician-patient relationship is an important component of the placebo response.

Placebo Response Rate in functional gastrointestinal disease

AUTHOR	DRUG	PLACEBO RESPONSE %	P< 0.05?
Pial '81	Prifinium	33	yes
Milo '80	Domperidone	34	yes
Heefner '78	Desipramine	60	equivocal
Myren '82	Trimipramine	67	no
Longstreth '81	Metamucil	71	no
Fielding '81	Timolol	73	no
Fielding '80	Trimebutine	88	no

From (76)

ANTISPASMODICS

Antispasmodics or gut smooth muscle relaxants have been used for IBS for decades, based primarily on the concept of IBS as a motility disorder. In a meta-analysis of 26 double-blinded randomized, placebo-controlled studies, the authors concluded that 5 of the 8 drugs they reviewed had been proven effective without significant adverse reactions, primarily for pain relief. No improvement was found in symptoms of abdominal distention or constipation. The effective drugs were cimetropium, pinaverium, octillium, trimebutine, and mebeverine (71). Cimetropium is an antimuscarinic. Pinaverium and octillium are calcium antagonists. Trimebutine is a peripheral opiate antagonist. Mebeverine is a beta-phenylethylamine with anticholinergic activity. Unfortunately These drugs are not available in the United States, although pinaverium is licensed in Canada. The two most commonly used drugs in this country, dicyclomine and hyoscyamine, were no more effective than placebo for pain. However, this study did not lead to the widespread abandonment of these medications. The placebo effect is still strong, and there is no reason to think that individual patients might not find them effective, even if their benefit has not been proven.

ANTIDEPRESSANTS AND SSRIs

Antidepressants have been used in the treatment of functional gastrointestinal disease since the 1960's. The original rationale for their use included the observation of a high prevalence of depression and anxiety in IBS. Anticholinergic side effects were viewed as a potential benefit, contributing to improvement in motility abnormalities. It is now recognized that antidepressants are effective for IBS in doses much smaller than those used for depression and other psychiatric problems, and that the effect is independent of anticholinergic actions. They have been proven useful for a variety of chronic pain syndromes. It is likely that the mechanism of action is through central pain modulation. Antidepressants are most useful for patients with predominant pain/distention-bloating. They are actually most effective for bowel symptoms in the absence of serious psychopathology(77). Anticholinergic side effects limit their usefulness in patients with constipation. Patients may be unwilling to take an antidepressant unless the neuromodulatory theory is explained to them, and they are reassured that the

recommended dose is lower than the psychoactive dose. Many antidepressants are available, with different profiles which may be appropriate for different patients.

Antidepressants for functional gastrointestinal disease

GENERIC	TRADE	CLASS	GI DOSE/DAY	COMMENTS
Desipramine	Norpramine	Tricyclic	10-150	Few anticholinergic effects
Imipramine	Tofranil	Tricyclic	10-150	Similar to desipramine
Amitryptiline	Elavil	Tricyclic	10-150	Oldest; sedating, +++ anticholinergic
Clomipramine	Anafranil	Tricyclic	25-100	Effective for obsessives ; SSRI-like
Doxepin	Sinequan	Tricyclic	10-200	Antihistaminic; +++ sedating
Trazadone	Desyrel	Atypical	25-50	Sedating; avoid in men- 1% priapism
Nefazodone	Serzone	Atypical	25-100	Similar to trazadone but no priapism

Antidepressants are useful in patients with concomitant anxiety and difficulty sleeping. Patients with overt depression require higher doses for effect. Patients with concomitant panic disorder can be treated effectively with desipramine, in doses of 10-300 mg. However, symptoms may worsen during the first week of treatment if an anxiolytic is not given at the same time. Most antidepressants predispose to weight gain and lower the seizure threshold. The benefit of antidepressants in functional gastrointestinal disease is often seen in the first 7-10 days of treatment, unlike with depression.

SSRIs for IBS

There is no published literature on the effectiveness of SSRIs for the symptoms of functional gastrointestinal disease. However, anecdotally, many experts in the field use them for indications similar to the other antidepressants. SSRIs have several advantages. They have no significant overdose risk. They are less commonly sedating. Fluoxetine (Prozac) is the most activating of the SSRIs. Although some patients enjoy this effect, it can be unpleasant, like a caffeine high. Fluoxetine has a very long half life. Paroxetine (Paxil) has a much shorter half life, and may be more suitable for a therapeutic trial than fluoxetine. Sertraline (Zoloft), in contrast to the other two agents, is more commonly mildly sedating than activating. SSRIs cause anorexia and mild weight loss. A serious limitation is upper GI distress, which occurs in up to 25% of patients. Both men and women can experience anorgasmia, and a few cases of malignant neuroleptic-like syndrome have been reported.

ANXIOLYTICS

Because of the increased risk for dependence, most clinicians do not prescribe anxiolytics for patients with functional gastrointestinal disease, particularly those with a history of prior chemical dependency, isolated chronic pain, a dysthymic personality, or a personality disorder. They may be useful in treatment of concomitant panic disorder, or in the very anxious, hypervigilant patient.

NEWER AGENTS

Several new agents are being studied for the treatment of IBS. Many studies are based on developments in visceral hypersensitivity and neuropharmacology. None of the drugs listed below has been proved effective for IBS or approved for use in the United States.

Somatostatin and octreotide

Somatostatin and octreotide reduce dorsal horn neuronal activity. CSF concentrations of somatostatin are reduced in chronic pain patients, and somatostatin analogues have been shown to relieve cluster headaches and cancer pain. In a study done in diarrhea-predominant IBS, octreotide infusion increased the threshold for perception of rectal balloon inflation as well as increasing the maximum inflation tolerated. The threshold for somatic pain was unaffected (78)

5HT3 Receptor Antagonists

Serotonin (5HT) pathways mediate some responses to noxious gut stimulation. For example, 5HT increases substance P and GCRP release in the spinal cord. 5HT3 receptor antagonists block cardiovascular responses to noxious colonic distention in animal models. Ondansetron, granisetron, and alosetron are relatively specific 5HT3 receptor antagonists. Granisetron has been shown to reduce rectal sensitivity in IBS, but in a similar study ondansetron did not (79,80). Alosetron is an oral drug which showed improvement in symptoms in diarrhea-predominant IBS in a preliminary trial (81).

Kappa Opioid Agonists

There are several types of opioid agonists, including mu, delta, and kappa. Kappa opioid agonists are effective for relieving pain through peripheral mechanisms. They do not have CNS side effects and do not affect motility. Fedotozine is a kappa opioid agonist which relieved abdominal bloating and pain in a large French study (82). This result has not been reproduced in the United States, and the drug is not approved for use here.

PSYCHOLOGICAL TREATMENTS

Patients who have moderate to severe symptoms which cause psychological distress and functional impairment may benefit from psychological treatments. Patients are more likely to respond if they relate exacerbations of IBS to stressors, if they are younger than 50, and if they have primarily abdominal pain and diarrhea (9). Many patients will accept referral for psychological treatment if presented as an adjunct to help control symptoms. The choice of treatment can be tailored to the dynamics and preferences of the patient. It is important that the primary care physician continue to follow the patient after referral for psychological treatment. It is not clear whether psychological treatments alter intestinal physiology or simply the impact of IBS symptoms, but it seems likely that both are factors. In general, there have been few well-designed, controlled studies of psychological treatments. However, a number have shown superiority over medical therapy alone, and a sustained response on follow-up (54)

COGNITIVE-BEHAVIORAL

Cognitive-behavioral treatment uses a variety of techniques to help patients recognize and improve maladaptive illness beliefs and gain control over their reactions to their symptoms. For example, catastrophic thinking is a maladaptive response to functional gastrointestinal disease symptoms. A patient with cramping pain and diarrhea may react as if the symptoms are a catastrophe, assuming that the symptoms will never improve, that the patient will be completely unable to function, and is completely helpless in the face of the problem. Cognitive-behavioral treatment helps the patient to gain a sense of control by posing alternative manners of coping. Education in and of itself is an important part of cognitive-behavioral therapy (54).

RELAXATION TRAINING

Relaxation techniques, such as progressive muscle relaxation or meditation, are an attempt to counteract the muscle tension and autonomic arousal induced by stress. Cognitive-behavioral and relaxation techniques are often combined (83).

HYPNOSIS

In hypnotherapy for functional gastrointestinal disease, an explanation of the role of abnormal motility and visceral hypersensitivity is provided. A standard hypnotic induction is used, which produces a state of increased suggestibility. The hypnotherapist then helps the patient achieve skeletal muscle relaxation and suggests imagery to relax intestinal smooth muscle. The session ends with a suggestion that the patient will feel better. Patients are asked to practice at home with a tape, and learn auto-hypnosis and relaxation. Several studies have found that hypnotherapy provided sustained improved bowel symptoms and general well being (84).

INTERPERSONAL PSYCHOTHERAPY

Interpersonal psychotherapy is particularly valuable for patients who can identify difficulties with significant relationships as a source of stress. A well designed study by a British investigator showed that this form of therapy was superior to medical therapy not only for reducing symptoms of anxiety and depression but in reducing abdominal pain and diarrhea. The improvement was sustained during follow-up(85).

SPECTRUM OF SEVERITY IN IBS

Management of IBS depends on the severity of symptoms. At least 70 % of IBS patients have mild disease. These patients are usually seen in primary practice. Their symptoms are intermittent and, while unpleasant, are not disabling. It is likely that altered gut physiology plays the predominant role in their illness, while psychosocial problems do not. They do not seek health care often, and usually require only education, reassurance, and modest changes in life style. Another 25% of patients have moderate IBS. They are often seen by gastroenterologists or other specialists. Their symptoms may occur frequently, but still intermittently, and are occasionally disabling. Symptoms are usually related to physiological events such meals or defecation, but they may also have psychosocial components. These patients respond to medication and/or psychological treatments. Fortunately, only a small proportion of patients has severe and refractory IBS.

They are often found in referral centers. Their symptoms, in which pain usually predominates, are usually constant and disabling. Psychosocial problems, such as a history of sexual/physical abuse, major loss, depression, or panic disorder, are prominent. They are likely to have had extensive consultations, repeated diagnostic tests, and even multiple surgical procedures. For these patients, antidepressant medication, referral for psychological treatment, and continuity of care with a knowledgeable and sympathetic primary care physician are important.

SPECTRUM OF SEVERITY

	MILD	**MODERATE**	**SEVERE**
Prevalence	70%	25%	5%
Practice type	Primary	Specialty	Referral
Constant Symptoms?	-	+	+++
Altered Gut Physiology	+++	++	+
Psychosocial problems	-	+	+++
Health care use	+	++	+++

From (76)

CHRONIC PAIN SYNDROMES AND ABNORMAL ILLNESS BEHAVIOR

The most challenging patients are those with IBS who also have features of chronic functional pain syndrome and abnormal illness behavior.

A number of features characterize chronic functional pain. There is often a long history, sometimes extending into childhood, of other painful conditions (headache, back pain, fibromyalgia). The pain is often constant and unaffected by environmental or physiological events. It may involve a large and atypical anatomic area. It is described in emotional and dramatic fashion, and as very intense, even though present for years. However, the patient may not show evidence of anxiety or autonomic arousal, and the complaints of pain may vary more with psychological than with physiological events. Pain becomes the primary focus of the patient's life, leading to relentless seeking of health care. There is often an emphasis on validating the pain as "organic," and a strong denial of the contribution of psychosocial factors. A variety of psychosocial problems may contribute to chronic functional pain. Patients may learn in childhood to minimize or deny psychological problems, and express them as physical symptoms. As mentioned before, a history of unresolved loss or trauma, such as physical or sexual abuse, is common. Poor coping styles and limited social support may further worsen the problem.

Patients with this type of illness are in very severe distress. Physicians are also often overwhelmed. The pattern of pain does not fit any biomedical model, and the disparity between the subjective description of the pain and the lack of objective abnormalities is irreconcilable. The patient's frequent or excessive demands, belief that a serious illness is being overlooked, and insistence on cure are seemingly impossible to satisfy. Psychosocial problems are often apparent, but the patient refuses to acknowledge them or accept referral for psychological treatment.

There are several strategies which may help physicians deal with this type of chronic pain syndrome and abnormal illness behavior. First of all, an effective physician-

patient relationship must be established if the patient is to have an improvement in outcome. However, this is usually the very type of patient the physician would rather not take care of. Patients with this type of problem often have difficulties with interpersonal relationships, and, in particular, in trusting physicians.

Physician Strategies for Chronic Pain Syndrome and Abnormal Illness Behavior

The physician should:

- Insist that diagnosis and therapy be based on objective features of disease or on observation over time, and not based on response to patient demands;
- Set realistic goals: improvement of symptoms and function, not cure;
- Share responsibility for management of symptoms with the patient, by offering alternatives;
- Show commitment to the patient's overall well being, rather than simply to treatment of disease;

Brief regular appointments rather than patient-initiated appointments for crises (86).

Acknowledgment: Several of the figures are taken from reference 76.

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Welcome to the WORLD Headquarters of the International Foundation for Functional Gastrointestinal Disorders

(IFFGD)

Formerly known as the
International Foundation for Bowel Dysfunction (IFBD)

Addressing issues surrounding functional GI disorders or incontinence through education and research.

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What is IFFGD?

IFFGD, the International Foundation for Functional Gastrointestinal Disorders, is a nonprofit education, support and research organization devoted to increasing awareness and understanding of functional gastrointestinal (GI) disorders. Our **mission** is to **inform**, assist, and support people affected by these disorders which include -

- Irritable Bowel Syndrome (IBS)
- Bloating or Gas
- Abdominal or Pelvic Floor Pain
- Gastroduodenal Disorders
- Functional Diarrhea or Constipation
- Esophageal Disorders
- Anorectal Disorders or Incontinence
- Biliary Disorders

The foundation's Advisory Board consists of an international group of physicians, nurses, therapists and investigators who are all working with the functional GI disorders.

Who Does IFFGD Serve?

IFFGD is a resource for those who seek information, help or support. We provide

up-to-date information about functional GI disorders through our quarterly newsletter, ***Participate***, through articles, through public symposiums and support groups and through professional symposiums.

IFFGD is a leader in the fight for more research to improve diagnostic and treatment options. We provide a voice to those affected - making the needs and concerns of those with functional GI disorders known to the physicians, nurses, therapists, and researchers who are working with patients and searching for answers.

Why Is There a Need for IFFGD?

Functional GI disorders affect millions of people of all ages - men, women and children. IBS affects at least 10-15% of adults. Did you know....

- IBS is one of the most common problems doctors see - after the common cold it is the second leading cause of absenteeism from work accounting for 27 million days of restricted activity annually
- People with functional GI disorders have 3-4 times the number of disability days than other workers
- People with functional GI disorders make up the largest proportion of gastrointestinal illness seen by physicians in primary care or gastroenterology
- In women, up to 60% who experienced a problem during childbirth report incidents of bowel incontinence
- Although the social and economic costs due to the functional GI disorders is immense, research support has been limited - in 1992 only 0.4% of research funding allocated for digestive diseases was for functional GI disorders

The symptoms of any of the functional GI disorders can cause discomfort ranging from inconvenience to deep personal distress. Much remains unknown about these disorders among both the public and professional community.

IFFGD is increasing awareness of both medical and personal needs of people affected by a functional GI disorder. We are taking this message to the medical care and research community, and to the general public.

Whether symptoms are mild or severe, people with a functional GI disorder often are unaware of what help options might be available to them or of where to look for help. **IFFGD** is a resource for those seeking information, help, or support.

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