



Relation Between Physical or Sexual Abuse and Functional Gastrointestinal Disorders

Abuse is a psychosocial factor associated with functional gastrointestinal disorders: it appears to modify the way patients perceive and react to their symptoms. This review outlines what has been learned or postulated about the link between psychosocial factors of abuse and symptoms of functional gastrointestinal disorders.

Introduction

In many parts of the world, people are becoming increasingly aware of the major problem of sexual and physical abuse. Population estimates of self-reported sexual abuse range from 7% to 22% for childhood abuse and from 13% to 25% for lifetime abuse. An additional 10% of women report serious physical abuse, and an association between sexual and physical abuse has been reported.¹ Women are abused much more commonly than men. Extensive information exists on the long lasting and serious psychological effects of child abuse.²

Recent research has focused on the important medical sequelae of abuse. For example, obesity, headache, drug abuse, chronic pelvic pain, somatization, and number of surgical procedures (especially hysterectomies) correlate with an abuse history.³⁻⁵ Evidence links abuse to functional gastrointestinal disorders, such as irritable bowel syndrome (IBS) and functional dyspepsia, which present common reasons for seeking health care.⁶

IBS, the prototypical functional gastrointestinal disorder, is best understood by using the biopsychosocial model popularized by Engel,⁷ ie, by viewing IBS as a disorder in which biologically determined symptoms may be influenced by cultural, social, interpersonal, and psychological

factors. Defining IBS as a purely enteric or psychological disorder is not supported by current knowledge; instead, the concept of abnormal central nervous system-enteric regulation is emerging.⁸ Current information supports a "link" from abuse to functional gastrointestinal symptoms and to care-seeking behavior.

Hypotheses Explaining Pathogenesis of Irritable Bowel Syndrome

The mechanisms which lead to IBS are multifactorial and are not mutually exclusive.^{9,10} The varied nature of these underlying factors must be considered because it leads physicians to reject the reductionist concept that a single factor (eg, past physical or sexual abuse) is the "cause" of IBS.

Motor Function

Abnormalities of fasting, of postprandial colonic motor activity, and of myoelectric slow-wave activity have been reported; however, these findings have varied greatly, and the reported abnormalities are poorly correlated with pain. Smooth muscle hyperreactivity to various stimuli has been found consistently. In addition, colonic transit is accelerated in patients with diarrhea and is delayed in patients with constipation. Recent work by Kellow and Bennett¹¹ has shown both abnormal small bowel motility (which is associated with pain) and motor hyperreactivity to balloon distention of the ileum.

Visceral Perception

Dysfunctional peripheral afferent nerves, central processing of afferent information, or both could be responsible for the visceral hyperalgesia which is clearly correlated with IBS. Autonomic dysfunction distinct for IBS symptom subgroups has been described.

Luminal Physiology

Intestinal symptoms may be induced by malabsorption of fructose and sorbitol. Some investigators believe that food sensitivity is a prominent factor in IBS. Ileal sensitivity to bile acids may lead to diarrhea or to a dominant complaint of bloating, which is of uncertain pathogenesis. Belching is related to aerophagia, whereas rectal gas is increased by colonic fermentation of indigestible carbohydrates.

Psychophysiologic Factors

Cognitive factors (eg, cancerphobia) can produce heightened anxiety and emotional arousal which, in turn, amplify gastrointestinal symptoms and cause patients to seek additional health care. Illness behavior—the way people perceive, interpret, and react to somatic sensations—may cause these sensations to be misinterpreted as symptoms of disease. The importance of such factors as anxiety, depression, and somatization is underscored by the observation that they predispose patients to development of IBS after onset of acute infectious diarrhea.¹²

Relation Between Abuse and Gastrointestinal Disorders (Functional or Organic) and Their Severity

Drossman and colleagues¹³ described female gastroenterology patients, about half of whom had IBS and 44% of whom reported a history of sexual or physical abuse. Patients with functional disorders were more likely than those with organic disorders to report severe sexual abuse or frequent physical abuse. Similarly, at our medical center in San Diego, we found that a history of abuse was more than twice as common among examinees with IBS than among those without this condition.¹⁴ Of those

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GEORGE F. LONGSTRETH, MD is a gastroenterologist with the Southern California Permanente Medical Group. He has been a gastroenterologist with the Southern California Permanente Medical Group since 1976. He is a Clinical Professor of Medicine at the University of California, San Diego School of Medicine.

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with IBS, sexual abuse was reported by 24%, physical abuse was reported by 22%, and emotional abuse was reported by 35%.¹⁴ A population-based American study¹⁵ found that a history of sexual, physical, or emotional abuse was associated with odds ratios of 2.3 for IBS and 2.0 for dyspepsia. A recent French survey¹⁶ found a higher prevalence of self-reported sexual abuse in patients with IBS than in patients with organic gastrointestinal disease, ophthalmology patients, or patients obtaining a routine health examination. Walker et al¹⁷ compared patients with IBS and inflammatory bowel disease and found a history of sexual abuse more often in IBS patients, but another survey¹⁸ showed that patients with these diagnoses did not differ regarding history of abuse.

Severity of Functional Disorders and Abuse

Classifying IBS according to number of Manning symptom criteria present, we found a statistically significant positive linear trend for sexual, physical, and emotional abuse in women whose IBS symptoms ranged from nonexistent to severe.¹⁴ Moreover, in the study by Drossman and colleagues,¹³ the IBS patients had been referred to a university gastroenterology department and so presumably had unusually severe IBS; these patients reported even more sexual abuse than was reported by patients in our study¹⁴ who had more severe IBS, indicating a progressive increase in abuse history with increasing IBS severity.¹⁹

Functional Disorders and Severity of Abuse

In a random sample of female patients from a rural family practice, especially severe sexual abuse (eg, penetration or multiple abusers) correlated with a higher number of medical problems than did less severe abuse.⁴ Using sophisticated interviews and health status measures for female patients referred to the University of North Carolina gastroenterology department, Drossman et al^{20,21} found that rape and severe physical abuse (life-threatening attack) predicted poor health but that health status was not predicted by attempted sexual abuse lacking contact or by physical abuse which was not life-threatening. Because of the relation of abuse severity to health status, they created an abuse severity scale.²²

Relation Between Abuse, Health Status, and Care-Seeking Behavior

Studies of various patient populations have shown independent associations between abuse and pelvic pain¹³ as well as number of somatic symptoms,^{13,14} surgical procedures,^{13,14} and physician visits for gastrointestinal symptoms.¹⁵ Among female gastroenterology patients, Drossman and colleagues²⁰ found

an independent effect of abuse history on all six measures of health status: 1) pain severity, 2) number of days in bed, 3) degree of psychologic distress, 4) extent of daily function, 5) number of physician visits, and 6) number of surgical procedures throughout lifetime. The authors²³ have recently extended their observations of this group to include number of health care visits for symptoms during the first year after entry into the study by taking into account abuse severity. Abuse severity correlated with number of symptoms, degree of functional disability at entry into the study, and number of health care visits during the subsequent year. Regression analysis showed that number of visits was related to severity of symptoms and disability, not to abuse itself.

Link Between Abuse and Gastrointestinal Symptoms

Drossman²⁴ postulated specific factors linking the physiologic and psychosocial aspects of abuse to functional gastrointestinal symptoms: 1) Chronic or traumatic stimulation of the pelvic area could activate previously silent nociceptors by down-regulating the sensation thresholds of the visceral afferent receptors, thereby increasing sensitivity to abdominal/pelvic pain or other symptoms; 2) Belief that one's sexual organs are “bad”—feelings of guilt and shame—could lead to sexual dysfunction and pain in the pelvis or abdomen (ie, whichever area the patient considers to be the “bad” area of the body); 3) Negative coping strategies could promote maladaptive adjustment to illness as well as increased illness behavior; 4) Association of psychiatric diagnoses (such as anxiety and somatoform disorders) with a history of abuse explains the tendency in some IBS patients for psychologic distress to manifest as bodily symptoms, often without patients being aware of this phenomenon; 5) Childhood hypervigilance to illness complaints and other early reinforcement of illness behaviors from parents and others could explain the high frequency of abuse history and other psychosocial problems.

Providing additional insight into the link between abuse with its psychosocial factors in general and functional bowel disorders, Scarinci et al²⁵ found altered pain perception and maladaptive pain coping by assessing psychologic and pain perception in women who had painful gastrointestinal disorders. Women who had a history of sexual or physical abuse showed more psychiatric disturbance. They also perceived a lower pain threshold when given finger-pressure stimulation than nonabused patients did, even after the authors controlled for psychiatric disturbance. The authors proposed that two factors un-



derlie pain threshold levels; the combination of lower response bias level and similar discrimination ability of abused patients compared with nonabused patients indicates that abused patients have a low cognitive standard for judging stimuli as noxious; in addition, abused patients report more functional disability, medication use, self-blame, and use of catastrophizing coping strategies. The authors²⁵ concluded that acute pain and psychiatric disturbance may result from abuse and, through interaction with environmental stressors, may lead to hypervigilance for noxious stimuli, self-blame, maladaptive coping strategies, and functional disability.

Evans et al²⁶ found a close relation between jejunal sensorimotor dysfunction and maladaptive coping strategies in female patients with IBS by comparing jejunal motor function, sensitivity to jejunal balloon distention, and psychosocial features in women with and without IBS. Among patients with IBS, 42% had hypersensitivity for thresholds of initial perception, and 25% had pain during jejunal distention. All IBS patients who had heightened sensitivity for initial perception had jejunal dysmotility after a high-energy meal, whereas jejunal dysmotility was seen in only a third of patients with normal perception. In patients who had both sensory and motor dysfunction, the psychologic profile was dominated by an ineffectual coping style featuring both anger hyperreactivity and defensive control of anger.

Silverman et al²⁷ found altered central nervous system processing of visceral pain in IBS patients by comparing regional cerebral blood flow (measured by using positron emission tomography) in response to rectal pressure stimuli in these and normal subjects. Both actual and simulated rectal pain activated the anterior cingulate cortex in normal subjects but not in IBS patients; instead, the same stimuli activated the left prefrontal cortex. Stating that morphine increases anterior cingulate cortical activity, the authors²⁷ suggested that the failure of morphine to activate this area in IBS patients represents a failure of pain inhibition mediated by endogenous opioids and that the frontal lobe area activated in IBS patients may represent activation of a vigilance network in the brain which enables a person to maintain a state of alertness toward expected stimuli. This finding may relate to the hypervigilance and response bias seen in IBS patients.

Summary and Conclusions

Surveys have shown more self-reported abuse among patients who have functional gastrointestinal disorders than among patients who have organic gastrointestinal disease. The proportion of subjects with self-reported abuse increases with the severity

of IBS—the prototypical functional bowel disorder—although current health status is linked only to the most severe types of past sexual and physical abuse. Furthermore, health status is independently affected by a history of abuse and by functional gastrointestinal disease. Severity of abuse is related to multiplicity of symptoms, degree of functional disability, and number of health care visits.

Several factors have been proposed to underlie the physiologic and psychologic link between abuse and functional gastrointestinal disorders. Maladaptive coping strategies have been linked to altered pain perception in formerly abused patients who have painful gastrointestinal disorders and to jejunal sensorimotor dysfunction in patients who have IBS. Preliminary work indicates that altered central nervous processing of visceral pain occurs in IBS, may underlie the response bias for painful stimuli in IBS, and challenges the traditional separation of functional and organic gastrointestinal disorders.²⁸

Patients do not often volunteer a history of abuse, and physicians are usually unaware that it has occurred.¹³ Therefore, primary care physicians, gastroenterologists, gynecologists, and mental health professionals should keep in mind the link between past physical or sexual abuse and functional gastrointestinal disorders and chronic pelvic pain. They should inquire more often about this matter, especially in patients who have these disorders. Psychotherapy should be offered to abused patients who want it; at our San Diego medical center, for example, social workers conduct group psychotherapy for molested women. Such treatment promotes initial and long-term improvement in various aspects of psychological status, including somatization.²⁹ ❖

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Order and Chaos

"Creativity happens at the boundary between order and chaos, when we're poised between the two. In our own lives, the edge is where we are constantly reinventing our culture, constantly questioning our assumptions."

Danah Zohar

Author of The Quantum Society