

Functional Abdominal Pain Syndrome

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Definition

- This syndrome differs from other functional bowel disorders in that it describes pain that is poorly related to gut function. Symptoms are unrelated to food intake, defecation and/or menses. It has a high co-morbidity with psychiatric disorders.

Diagnostic Criteria*

for Functional Abdominal Pain Syndrome

Must include ***all*** of the following:

1. Continuous or nearly continuous abdominal pain.
2. No or only occasional relationship of pain with physiological events (eg, eating, defecation, or menses).
3. Some loss of daily functioning
4. The pain is not feigned (eg, malingering)
5. Insufficient symptoms to meet criteria for another functional gastrointestinal disorder that would explain the pain.

** Criteria fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis.*

Epidemiology

- This represents a heterogenous group of disorders with neuropathic peripheral pain mechanisms that relate to endogenous pain modulation systems.
- It is the **least** common of the functional GI disorders, found in less than 2% of the population, compared to $\geq 10\%$ for irritable bowel syndrome.
- Its female to male ratio is 3 to 2 and peaks in the 4th decade.
- It is commonly associated with such pain syndromes as chronic fatigue syndrome and IBS in children.
- It is commonly associated with other somatic symptoms including pain related to gynecologic or urologic symptoms.
- When pain is persistent, psychological disturbances are more likely and actually qualify as a psychiatric somatoform pain disorder.

Clinical Evaluation

Symptom-Related Behaviors Often Seen in Patients with FAPS

Expressing pain of varying intensity through verbal and nonverbal methods, may diminish when the patient is engaged in distracting activities, but increase when discussing a psychologically distressing issue or during examination.

Urgent reporting of intense symptoms disproportionate to available clinical and laboratory data (eg, always rating the pain as “10” on a scale from 1 to 10).

Minimizing or denying a role for psychosocial contributors, or of evident anxiety or depression, or attributing them to the presence of the pain rather than to understandable life circumstances.

Requesting diagnostic studies or even exploratory surgery to validate the condition as “organic”.

Clinical Evaluation (Continued)

Focusing attention on complete relief of symptoms rather than adaptation to a chronic disorder.

Seeking health care frequently.

Taking limited personal responsibility for self-management, while placing high expectations on the physician to achieve symptom relief.

Making requests for narcotic analgesic when other treatment options have been implemented.

- The pain involves a large anatomic area usually rather than a precise location. It may coexist with several other painful syndromes including fibromyalgia and a continuum of painful experiences beginning in childhood which are recurrent over time peaking in the 4th decade.

Case Report

- TC is a 31 y.o. divorced single mother who I saw first in April of this year. She was complaining of regurgitating mucous-like material in vast quantities that would awaken her at night and was associated with bloating and upper abdominal pain. 2 years ago she had taken Kapidex for heartburn and claimed that it created an explosion within her abdomen and implied that this was the cause of her current problems of severe epigastric and severe abdominal pain. She had changed her diet to soft foods because of this excessive mucous which she describes as foul smelling and associated with posterior headaches. I note that she had gained 3 pounds over the past 2 months.
- **Review of systems:** revealed depression, mild constipation, but defecation did not help her symptoms and she believes she has restless leg and carpal tunnel syndromes.
- **Social history:** I noted that she was a certified nursing assistant, a single mother, had poor relations with her mother, and nonsmoker, and drinker.

Case Report (Continued)

- **Family history:** Mother - carpal tunnel syndrome, Father – bipolar disorder, and Aunt – with ovarian sarcoma in remission.
- **Physical examination:** Vital signs normal, weight 100 lbs, and BMI 15 (17) revealed exquisite tenderness over all of the abdomen, worse in mid-upper region as well as mid-back. Peripheral and CNS were normal.
- **Laboratory tests:** Referral from referred physicians revealed normal gastric emptying tests, a 24-hour Bravo pH study, and esophageal manometry. Further tests included repeat EGD, a complete metabolic panel, C-reactive protein, TSH, and antibody tests for gluten enteropathy tests were all normal.
- **Conclusions:** Functional abdominal pain and associated comorbidities of headache, backache, and depression. I noted that she told me that her primary care doctor had recommended that she see a psychiatrist, but she blamed her mother for telling the doctor bad things about her and did not wish to see a psychiatrist.

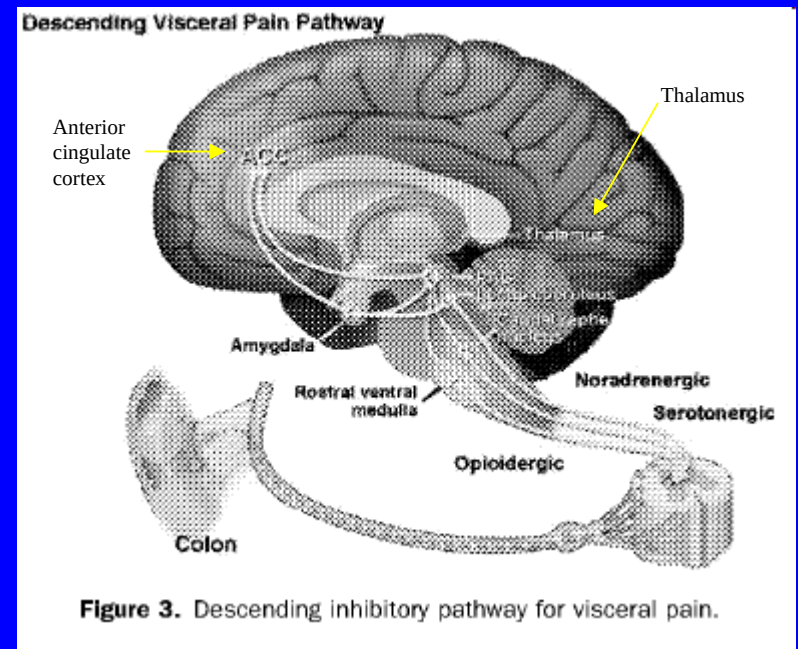
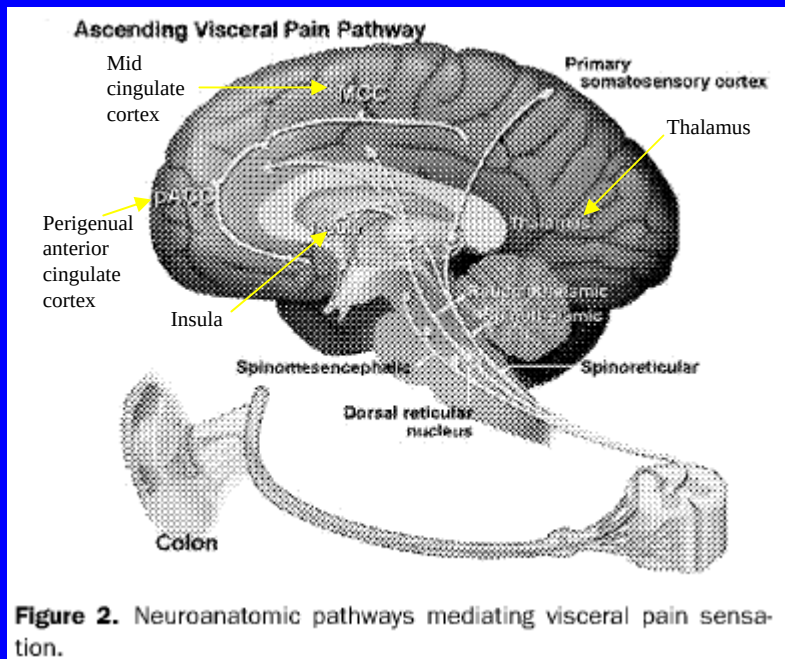
Physiologic factors

Central neuropathic pain is the likely pathophysiologic source of the disorder with a common beneficial response to low-dose TCA (Tricyclic antidepressants).

- Common co-morbidities include anxiety, depression, and somatization that suggest central cognitive or emotional origins (limbic, prefrontal areas).
- Possible peripheral factors may precipitate the chronic pain state (e.g., complex regional pain symptom).

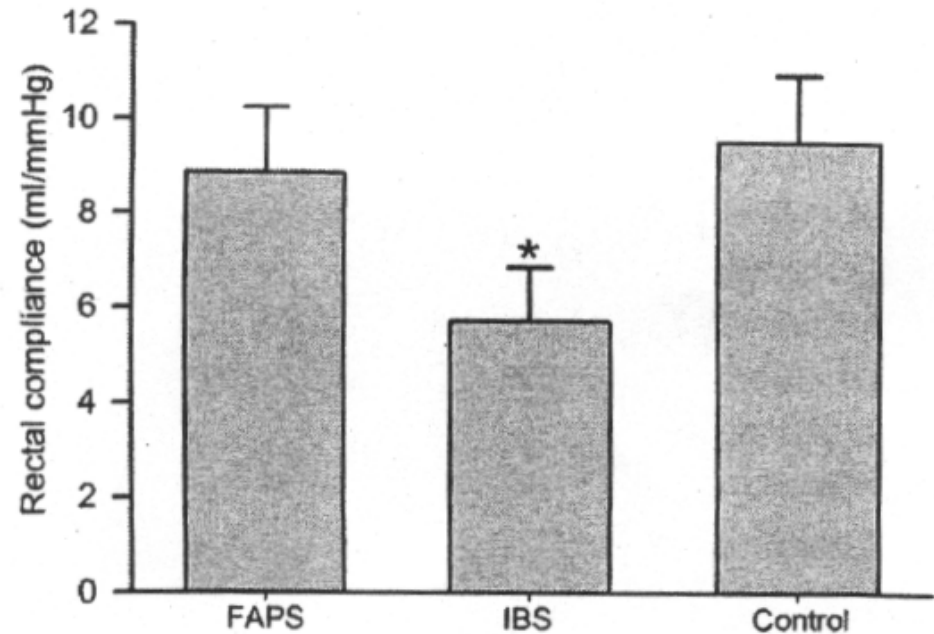
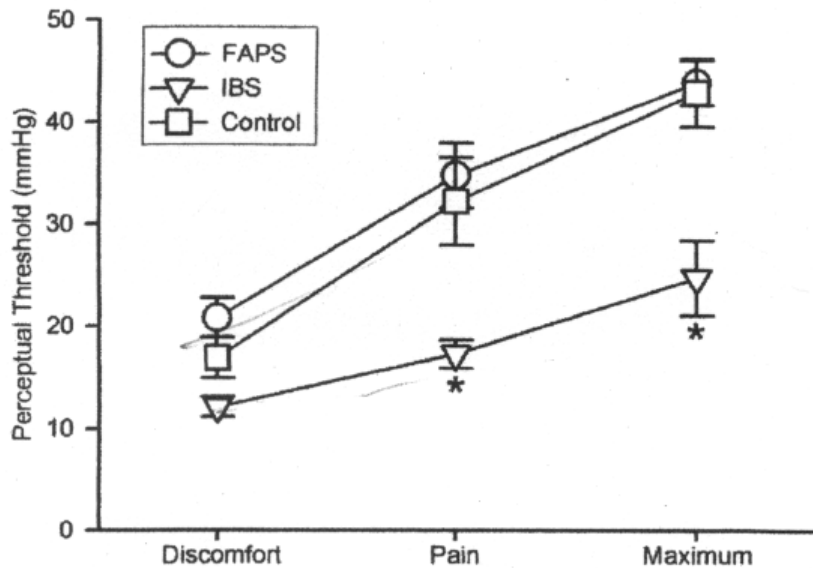
Descending pain modulation of opioidergic, serotonergic, and neuroadrenogenic pathways that originate in the brain stem regions which modulate spinal cord activity that enhance abdominal pain.

- Functional abdominal pain syndrome and fibromyalgia have the same ability to activate endogenous pain inhibitor systems or cause imbalance between facilitatory and inhibitory systems.
- Functional brain imaging techniques highlight the prefrontal cortical regions with connections to limbic system and the brain stem regions which alter cognitive perception for pain modulation circuits.



Psychological Factors

- FAPS has a lack of rectal hyposensitivity when compared to IBS, while rectal compliance is also normal.



Rectal compliance in response to ramp distention are shown as mean $\pm$ SE. * P vs. control < 0.05.

Psychological Factors

- Early life events and psychological stresses may originate from genetic influences, be learned from parents and or are associated with loss, abuse and vulnerability because of poor coping skills that affect pain modulation later in life to cause FAPS or IBS.
- FAPS is seen with other somatoform disorders such as somatization, conversion disorder, and hypochondriases.
- Unresolved losses result from deaths, unsuccessful surgery, pregnancy losses, and consequent ineffective coping skills that result in catastrophizing.
- Poor social family support, sexual and physical abuse are associated with FAPS similar to IBS. All of the above predict poor health states, medical refractoriness, increased diagnostic and therapeutic procedures with frequent healthcare visits.

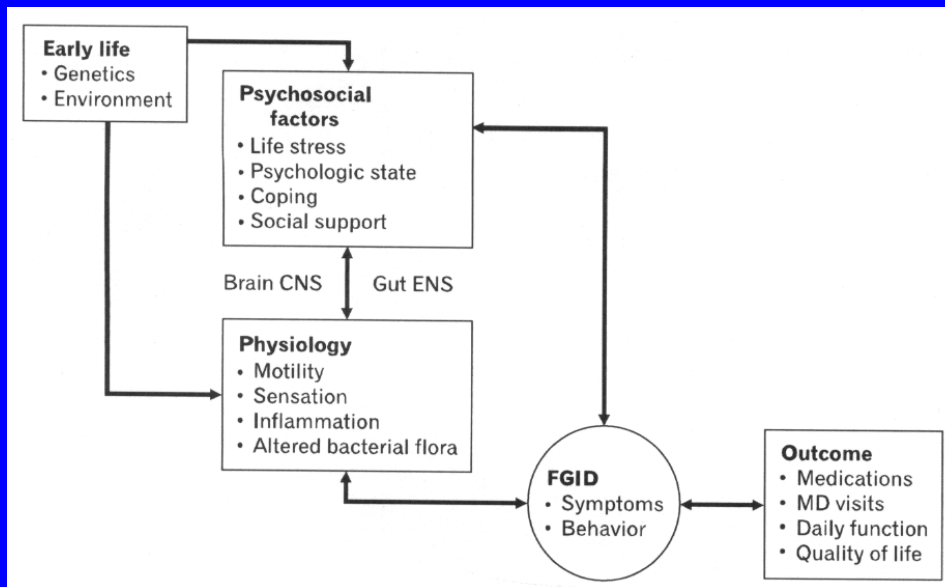
Case Report (continued)

- TC 31 y.o. female with severe abdominal pain.
- **Conclusions:** Functional abdominal pain and associated co-morbidities of headache, backache, and depression. I noted that she told me that her primary care doctor had recommended that she see a psychiatrist, but she blamed her mother for telling the doctor bad things about her and did not wish to see a psychiatrist.
- **Recommendations:** Continue to take her proton pump inhibitor BID and use MiraLax for her mild constipation that was not relieved by defecation. Normalize diet, increase fiber intake, and take caloric supplements.
- As I did not want to offend her in any way, I suggested that she be referred to a multidisciplinary pain management team which could help her control her pain with other modalities while avoid addicting her with narcotics.
- I truly believe that she needs a psychiatrist to take care of her depression, conversion disorders, somatization, and poor coping skills that result in catastrophizing.

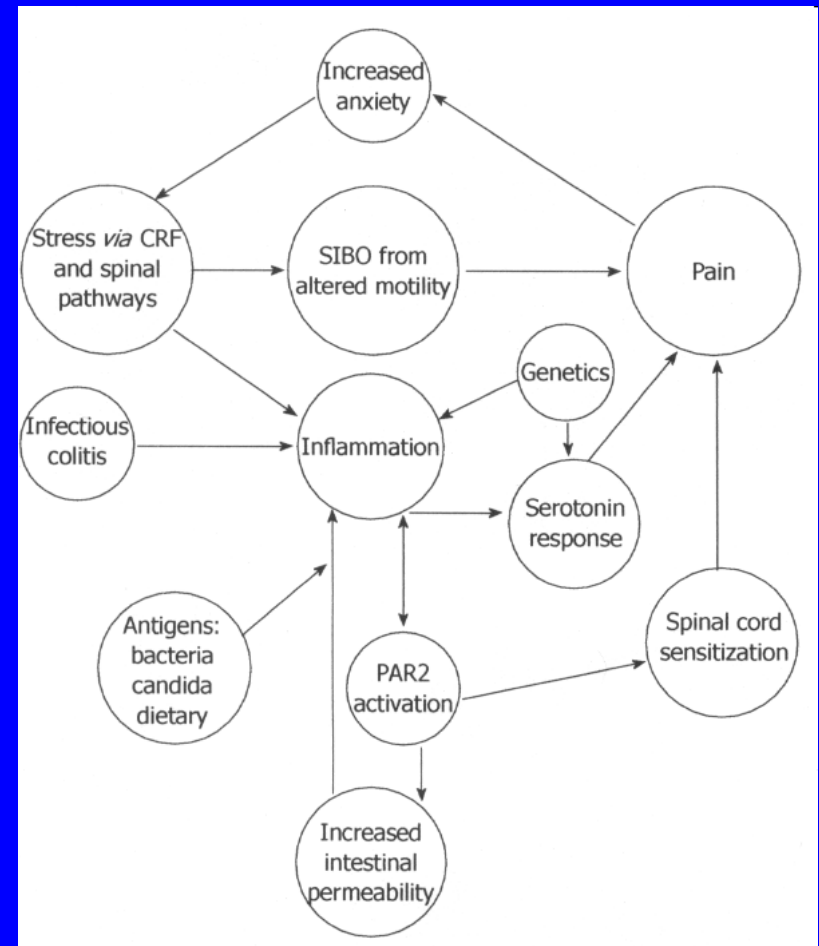
Case Report (continued)

- I told her that Kapidex had not created any of her symptoms, but that her pain control required counseling (psychiatry and/or psychological) as well as treatment from a multidisciplinary group that could optimize all facets of treatment including pharmacologic and complementary treatments that improve pain modulation systems to help control her pain.
- She wished to have me perform these services, and was put off when I said she needed greater expertise than I had to offer.
- She illustrates the problems of poor family support, unsubstantiated pain beliefs, affective disorders, and poor coping mechanisms that result in catastrophizing. All of these contribute to her functional abdominal pain syndrome and its co-morbidities.

Biopsychosocial Model



Organic Model



Overlap Between Functional and Organic Models

Pathophysiology of
Postinfectious Irritable Bowel
Syndrome explains the
Interaction between local
inflammation and psychosocial
factors in determining the risk of
developing postinfectious IBS

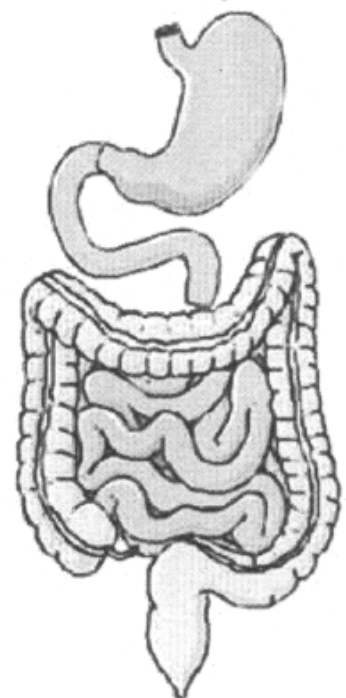
Psychosocial factors

- Adverse life events
- Depression, anxiety
- Stress
- Hypochondriasis
- Female gender
- Smoking



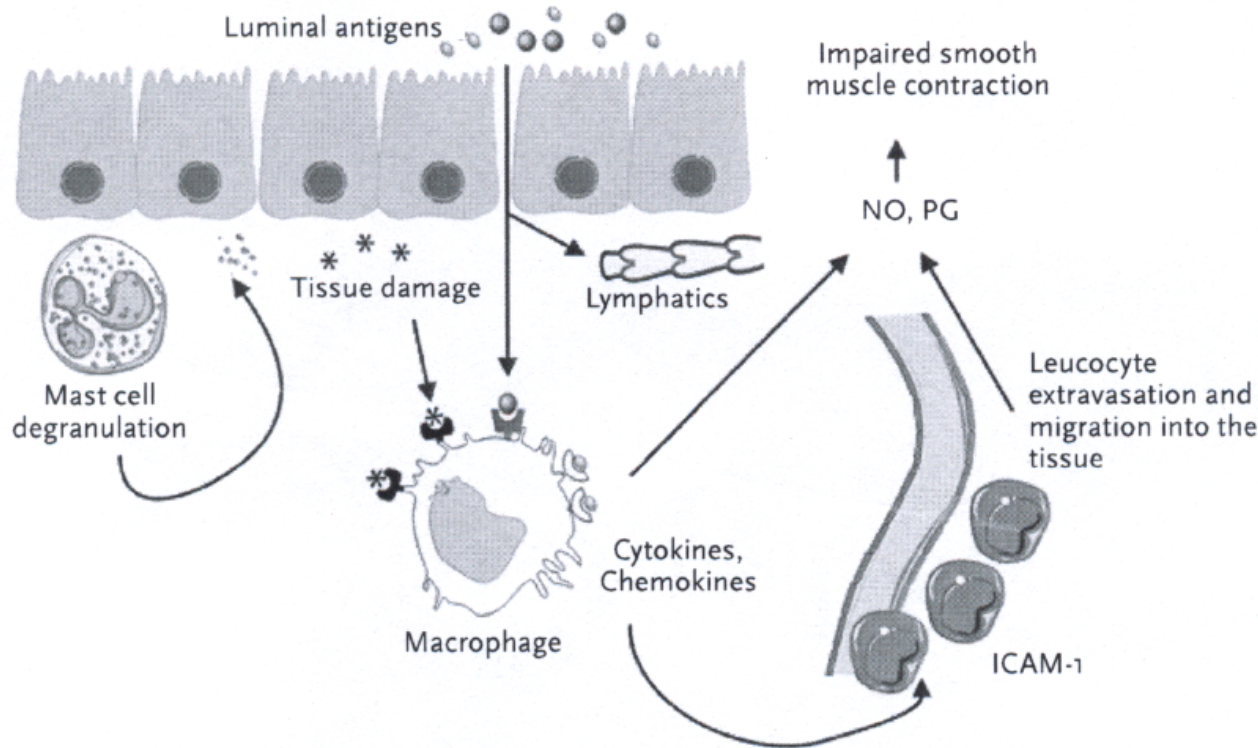
Local inflammation

- Duration of initial illness
- Virulence factors
- Use of antibiotics
- Lymphocytosis
- Genetics factors



Overlap Between Functional and Organic Models

Proposed immune mechanisms underlying impaired intestinal contractility following abdominal surgery



Mast cells are activated by intestinal handling and release substances which increase mucosal permeability. This allows luminal bacteria or bacterial products such as lipopolysaccharides to enter the lymphatic system or to interact with Toll-like receptors on residential macrophages. The degrade products of the extracellular matrix that are released upon tissue damage by intestinal manipulation may also directly activate residential macrophages. The latter will release inflammatory cytokines and chemokines, resulting in upregulation of endothelial adhesion molecules including intercellular adhesion molecule-1 (ICAM-1). The latter attracts invasion of leucocytes into the intestinal muscularis externa. These leucocytes and the resident macrophages concomitantly produce large amounts of nitric oxide (NO) and cyclo-oxygenase 2 (Cox-2). Cox-2 stimulation results in production of prostaglandins (PG) which together with NO, impair the contractile activity of the smooth muscle cells.

Treatment

- The patient/physician relationship is important such that empathy, patient education, and validation of illness with reassurance requires that the patient take responsibility for their own illness.
- General aspects of care include helping the patient take responsibility, base treatment on symptoms, severity, and disability.
- Referral to mental health care professionals and multidisciplinary clinics may be needed.

Pharmacological Therapies

- Pharmacological therapies focus on antidepressants such as low-dose TCAs and SSRIs for anxiety and depression that influence pain modulation systems.
- The SSNIs are combined serotonin and noradrenaline reuptake inhibitors that provide similar effects.
- NSAIDs are to be avoided.
- Many of these agents have not had adequate control studies including anecdotal reports.
- Anticonvulsants such as gabapentin, carbamazepine, and lamotrigine are intended to interrupt peripheral pain modulation and central depression.

Psychological therapy

- Cognitive behavioral therapy.
- Dynamic or interpersonal therapy
- Hypnotherapy
- Stress management and referral to pain clinics for multidisciplinary approaches are reserved for the most severe patients.

Consultation to Mental Health Professionals

Psychiatric disorders

(eg, major depression and panic disorders)

Other identifiable psychiatric disorders, which require specific treatments

(eg, antidepressants, CBT and other psychotherapy)

Chronic refractory pain

Severe impairment

Abnormal illness behavior

Difficulties in physician-patient interaction

Idiosyncratic health beliefs

History of abuse or other significant trauma

CBT, cognitive behavioral therapy.

Complimentary Therapies

- Complimentary therapies include spinal manipulation, massage, acupuncture and transcutaneous electrical nerve stimulation, as well as laparoscopic interventions with adhesiolysis. Case reports exist for treatment of FAPS with radio frequency thermal coagulation of the thoracic splanchnic nerve.
- Probiotics, prebiotics, and herbal medications.

Autonomic Nerve Dysfunction and its Clinical Manifestations

- A number of dysautonomias that should be remembered when interactions between functional disorders exist. They are as follows: cycling vomiting syndrome (CVS), migraine, orthostatic intolerance (OI), reflex syncope, interstitial cystitis, Raynaud's syndrome, complex regional pain syndrome (CRPS), irritable bowel syndrome, functional dyspepsia, functional abdominal pain, fibromyalgia, and chronic fatigue syndrome.
- Migraine is commonly found in fibromyalgia, irritable bowel syndrome, and syncope. There are recent reports of a lack of visceral hypersensitivity in FAPS particularly at the level of pelvic innervation while patients have increased irritable bowel syndrome have increased visceral hypersensitivity. FAPS may have differences in compliance as well as sensory perception at the rectal level.

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