



# Exploring multidisciplinary treatments in the traumatizing aspects of chronic abdominal pain

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## Introduction

Abdominal pain is a complex phenomenon that involves unpleasant sensory and emotional experiences caused by actual or potential visceral tissue damage. As pain becomes chronic, there is a functional reorganization of the brain involved in emotional and cognitive processing leading to amplification of pain perception and associated pain suffering.<sup>1,2</sup> With the rising recognition of the complexity of pain management in the 1960s, the treatment of pain became a recognized field of study, leading to the formation of interdisciplinary teams to treat pain. However, although efficacious, this model lacked adequate reimbursement structures and eventually subsided as opioids (which at the time were widely believed to be nonaddictive) become more prevalent.<sup>3</sup> Not only is there a lack of empirical evidence for opioids in the management of chronic abdominal pain, there is a growing list of adverse consequences of prolonged opioid use for both the brain and gastrointestinal tract.<sup>4</sup>

Recently, there has been more clinical focus on behavioral interventions that can modulate gut pain signals and associated behaviors by reversing maladaptive emotional and cognitive brain processes.<sup>5</sup> One such psychological process that has received little attention is the traumatizing nature of chronic abdominal pain. Chronic pain, particularly when it feels uncontrollable to patients, activates the brain's fear circuitry and drives hyperarousal, emotional numbing, and consolidation of painful somatic memories, which become habitual and further amplify negative visceral signals.<sup>6,7</sup> These processes are identical to the symptom manifestations of post-traumatic stress disorder (PTSD) such as intrusiveness, avoidance,

negative mood and cognitions, and hyperarousal from life events. In fact, individuals with a history of other traumatizing exposures have an even higher risk of developing chronic pain disorders.<sup>8</sup> This review has two objectives: to provide a theoretical framework for understanding chronic pain as a traumatizing experience with posttraumatic manifestations and to discuss behavioral interventions and adjunctive non-opioid pharmacotherapy embedded in multidisciplinary care models essential to reversing this negative brain-gut cycle and reducing pain-related suffering.

## Trauma and chronic abdominal pain

Trauma is defined as an individual's response to a threat to safety. Traumatized patients or those with PTSD are at higher risk for chronic abdominal pain.<sup>9</sup> Given the strong neurobiological connection between the brain and gut that has been phylogenetically preserved, emotional (e.g., fear, terror) or physical (e.g., pain) signals represent danger, and with chronicity, there can be a kindling-related consolidation of these maladaptive neurobiological pathways leading to suffering (e.g., hopelessness, sense of failure) and disability (Figure 1).

The interrelationship between chronic pain and trauma is multifaceted and is further complicated by the traumatizing nature of chronic pain itself, when pain is interpreted as a signal that the body is sick or even dangerously ill. Patients with chronic abdominal pain may seek multiple medical opinions and often undergo extensive, unnecessary, and sometimes harmful interventions to find the cause of their pain, with fear of disability and even death driving this search for answers.

The degree to which an individual with long-lasting pain interprets their discomfort as a risk to their well-being is related to the degree



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of trauma they experience because of their pain.<sup>10</sup> Indeed, many of the negative symptoms associated with posttraumatic stress are also found in those with chronic abdominal pain. Trauma impacts the fear circuitry centers of the brain, leading to altered activation of the hypothalamic-pituitary-adrenal axis and the amygdala, as well as chronic activation of the sympathetic nervous system and stress-released hormones, all of which are potential pathways that dysregulate the brain-gut relationship.<sup>11-13</sup> Worries for safety, which are reactivated by physiological cues (e.g., GI symptoms, pain) as well as avoidance of potential triggers of GI symptoms (e.g., food, exercise, medications, and situations such as travel or scheduled events, and fear of being trapped without bathroom access), are common. Traumatized individuals can experience a foreshortened sense of the future, which may lead to decreased investment in long-term determinants of health (e.g., balanced diet, exercise, social support) and have higher rates of functional impairment and higher health care utilization.<sup>14</sup> Negative mood, including irritability, anxiety,

depression, insomnia, and impaired concentration are common in those with trauma and chronic pain and can be accompanied by internalized blame (e.g., depression, substance abuse, suicidality) or externalized blame (e.g., negative relationships with health care providers, rejection from their support or faith system). These can be worsened by an impaired sense of trust, which impacts the patient-provider relationship and other sources of social support leading to lack of behavioral activation, anhedonia, and isolation.

Another commonality is hypervigilance, as those with chronic abdominal pain are often hyperaware of physical symptoms and always “on alert” for a signal indicative of a pain flare. Anxiety and depression frequently co-occur in populations with trauma and chronic pain; these diagnoses are associated with higher rates of catastrophizing and learned helplessness, which may be exacerbated by lack of a “cure” for functional gastrointestinal disorders (FGIDs) and chronic pain.<sup>15</sup> These factors could potentially lead to lack of engagement with treatment or, alternatively, risky or destructive attempts to cure pain including dan-

**M**anagement of chronic abdominal pain remains one of the most challenging tasks that clinicians face. While many of these patients are solely treated with pharmacotherapy, it's also important to acknowledge that the treatment of chronic abdominal pain may benefit from a multidisciplinary approach that utilizes

behavioral therapies. In this quarter's In Focus article, brought to you by *The New Gastroenterologist*, Emily Weaver and Eva Szigethy (University of Pittsburgh) provide a fantastic overview of how to better understand chronic abdominal pain as well as nonopioid pharmacotherapy and behavioral therapy options that can be utilized

in its treatment. Given the dire need for effective nonopioid management of chronic abdominal pain, this article will no doubt be important to all practicing in the field of gastroenterology.

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gerous complementary alternative treatments or substance abuse to numb sensations. Another feature of trauma in chronic pain is the sense of dissociation from and lack of control over the body, sometimes induced by negative medical experiences (e.g., unwanted physical examinations, medication side effects, traumatic procedures, or hospitalizations).<sup>16,17</sup>

**The importance of treating trauma in the management of chronic pain**

Behavioral treatment is increasingly being recognized as an essential component in the management of any chronic pain syndrome.<sup>18</sup> The most studied psychosocial interventions for chronic abdominal pain are cognitive-behavioral therapy (CBT) and gut-focused hypnosis. CBT is usually a problem-focused, short-term intervention that can be delivered individually in the office, via group therapy, or through virtual platforms. CBT is most effective when cognitive distortions and ineffective behaviors create emotional distress, and the therapy targets patient's stress reactivity, visceral anxiety, catastrophizing, and inflexible coping styles.<sup>5</sup> Gut-focused hypnosis is the second most-studied behavioral treatment for chronic abdominal pain and utilizes the trance state to make positive suggestions leading to broad and lasting physiological and psychological improvement.<sup>19</sup> In addition to pain management, both CBT and hypnosis are efficacious

**Table 1: Effective interventions for posttraumatic stress disorder** (21,29-33)

Intervention	Description	Session number and format
Cognitive-behavioral therapy (CBT), including cognitive processing therapy, cognitive therapy, and prolonged exposure	Teaches coping skills to target and change maladaptive thoughts, feelings, and behaviors related to unhealthy interpretations of trauma to improve overall functioning. Prolonged exposure can be used independently or in conjunction with other CBTs and teaches individuals to gradually face their trauma memories/triggers to reduce avoidance behaviors; also utilizes relaxation skill training.	12-16 sessions over 3-month period, individual or group (prolonged exposure generally individual)
Brief eclectic psychotherapy	Utilizes CBT and psychodynamic therapy along with positive patient-provider rapport to reduce guilt and shame related to trauma	16 weekly sessions, individual
Eye movement desensitization and reprocessing therapy	While focusing on trauma memory, uses bilateral stimulation (usually eye movements) to reduce strength of trauma memory on emotions	6-12 sessions delivered once or twice weekly, individual
Trauma-focused hypnosis	Utilizes induction of trance state and resulting openness to therapist's suggestions to change relationship between emotions, thoughts, behaviors, and perceptions to enhance trauma healing	4-6 weekly sessions over at least 6 weeks
Narrative exposure therapy	Helps individuals create an account of traumatic experiences with the goal to empower and increase self-respect	4-10 sessions, usually group
Interpersonal psychotherapy (IPT)	Focuses on the impact of trauma on interpersonal relationships; combination of psychoeducation, problem solving, interpersonal skill training in the areas of grief, role disputes, or role transitions	12-16 weekly sessions, individual or group
Medications	Sertraline, paroxetine, fluoxetine, and venlafaxine (only sertraline and paroxetine are FDA approved)	Titrate over 1-2 months to maintenance dose

treatments for PTSD.<sup>20,21</sup>

Utilizing a multidisciplinary medical team including integrated behavioral experts, such as in a patient-centered medical home, is considered the standard of care for treatment of chronic pain. The patient-provider relationship is essential, as is consistent follow-up to ensure effective symptom management and improvements in quality of life. Additionally, patient education, including a positive (i.e., clear) diagnosis and information on the brain-gut relationship, is associated with symptom improvement. In

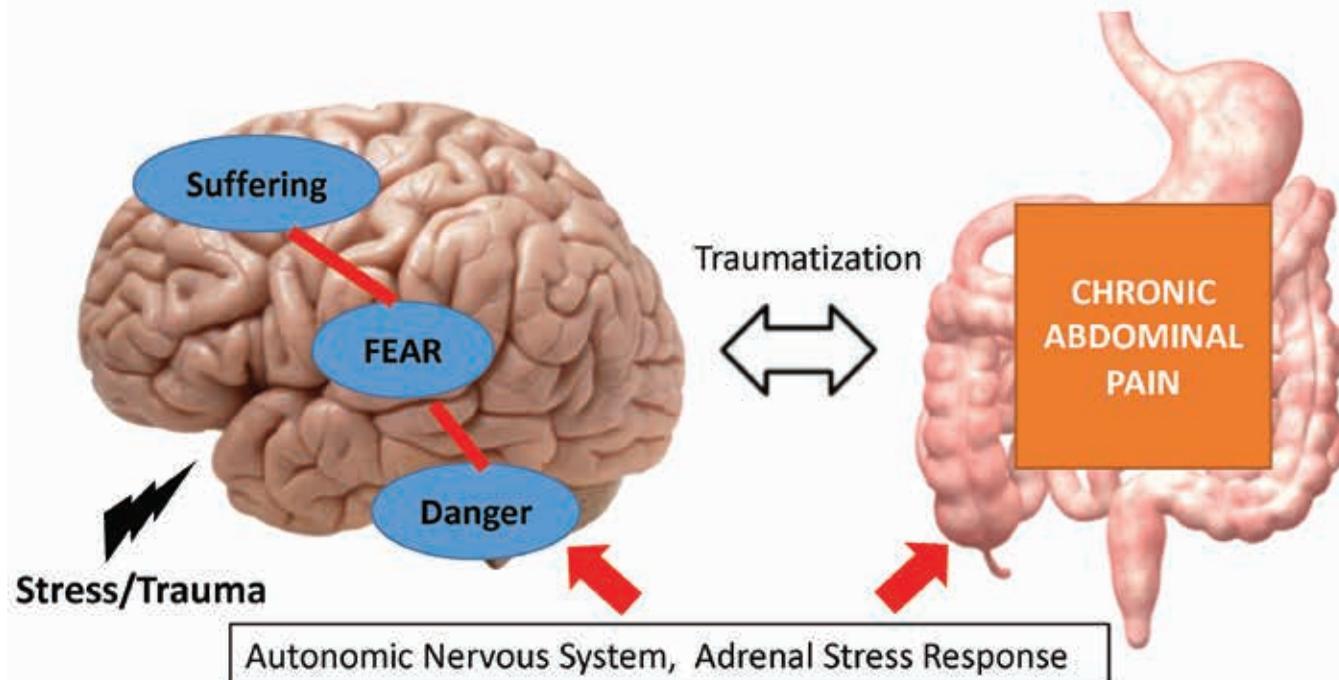
our subspecialty medical home for inflammatory bowel disease (IBD), we found that, in our patients who were on opioids for their chronic pain, engagement with our embedded behavioral and pain specialists resulted in significant reduction in opioid use and depression as well as improved self-reported quality of life.<sup>22</sup> Gastroenterologists and advanced-practice providers operating without embedded behavioral therapists can consider referring patients to behavioral treatment (e.g., licensed clinical social workers, licensed professional counselors,

marriage and family therapists, psychologists, and psychiatrists; the latter often specialize in medication management and may not offer behavioral therapy) for trauma if patients have undergone a traumatic event (e.g., exposure to any potentially life-threatening event, serious injury, or violence) at any point in their lifetime and are experiencing intrusive symptoms (e.g., memories, dreams, or flashbacks to trauma), avoidance of trauma reminders, and negative mood or hyperarousal related to traumatic events (Table 1).<sup>23</sup>

With the traumatization component of chronic abdominal pain, which can further drive maladaptive coping cycles, incorporation of trauma-informed treatment into gastroenterology clinics is an avenue toward more effective treatment. The core principles of trauma-informed care include safety, choice, collaboration, trustworthiness, and empowerment,<sup>24</sup> and are easily aligned with patient-centered models of care such as the interdisciplinary medical home model. Incorporation of screening techniques, interdisciplinary training of clinicians, and use of behavioral providers with experience in evidenced-based treatments of trauma enhance a clinic's ability to effectively identify and treat individuals who have trauma because of their abdominal pain.<sup>25</sup> Additionally, the most common behavioral interventions for functional gastrointestinal disorders (FGIDs) are also efficacious in the treatment of trauma. CBT is a well-validated treatment for PTSD that utilizes exposure therapy to help individuals restructure nega-

*Continued on following page*

**Figure 1** Trauma and the Brain-Gut Interaction with Chronic Abdominal Pain



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tive beliefs shaped by their negative experience and develop relaxation skills. Hypnosis is also validated in the treatment of trauma, with the possible mechanism of action being the replacement of the negative or dissociated traumatic trance with a healthy, adaptive trance facilitated by the hypnotherapist.<sup>21</sup>

#### Adjunctive nonopioid medications for chronic abdominal pain

While there are few randomized controlled trials establishing efficacy of pharmacotherapy for sustained improvement of abdominal pain or related suffering, several small trials and consensus clinical expert opinion suggest partial improvement in these domains.<sup>26,27</sup> Central neuromodulators that can attenuate chronic visceral pain include antidepressants, antipsychotics, and other central nervous system-targeted medications.<sup>26</sup> Tricyclic antidepressants (e.g., amitriptyline, nortriptyline, imipramine, desipramine) are often first-line treatment for FGIDs.<sup>28</sup> Serotonin noradrenergic reuptake inhibitors (e.g., duloxetine, venlafaxine, desvenlafaxine, milnacipran) are also effective in pain manage-

ment. Selective serotonin reuptake inhibitors (e.g., paroxetine, fluoxetine, sertraline, citalopram, escitalopram) can be used, especially when comorbid depression, anxiety, and phobic disorders are present.

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Tetracyclic antidepressants (e.g., mirtazapine, mianserin, trazodone) are effective treatments for early satiety, nausea/vomiting, insomnia, and low weight. Augmenting agents are utilized when single agents do not provide maximum benefit, including quetiapine (disturbed sleep), bupropion (fatigue), aripiprazole, buspirone, and tandospirone (dyspeptic features and anxiety). Delta ligands including gabapentin and pregabalin are helpful for abdominal wall pain or fibromyalgia. Ketamine is a newer but promising pathway for treatment of pain and

depression and is increasingly being utilized in outpatient settings. Additionally, partial opioid-receptor agonists including methadone and suboxone have been reported to decrease pain in addition to their efficacy in addiction recovery. Medical marijuana is another area of growing interest, and while research has yet to show a clear effect in pain management, it does appear helpful in nausea and appetite stimulation. Obtaining a therapeutic response is the first treatment goal, after which a patient should be monitored in at least 6-month intervals to ensure sustained benefits and tolerability, and if these are not met, enhancement of treatment or a slow taper is indicated. As in all treatments, a positive patient-provider relationship predicts improved treatment adherence and outcomes.<sup>26</sup> However, while these pharmacological interventions can reduce symptom severity, there is little evidence that they reduce traumatization without adjunctive psychotherapy.<sup>29</sup>

#### Summary

Both behavioral and pharmacological treatment options are available for chronic abdominal pain and most useful if traumatic manifestations are assessed and included

as treatment targets. A multidisciplinary approach to the treatment of chronic abdominal pain with increased screening and treatment of trauma is a promising pathway to improved care and management for patients with chronic pain. If trauma is left untreated, the benefits of otherwise effective treatments are likely to be significantly limited.

See references at [www.mdedge.com/gihepnews/new-gastroenterologist](http://www.mdedge.com/gihepnews/new-gastroenterologist)



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