

# Psychogenic Factors in Gastrointestinal Pathology

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**Is half a glass of water half full or half empty? Although the reality remains the same, the way individuals look at it will definitely change their emotional state. Half full or half empty makes the difference between positivism and negativism, between stress and inner peace, between psychogenic factors that will, over the ideomotorical rule in psychology,\* enhance or inhibit physical condition or strength.**

Emotional triggers of immune disorders are very well-known in modern medicine, especially where psycho-neuro-endocrino-immunological (PNEI) effects are seen as a major trigger within psychosomatic diseases.<sup>1</sup> Serotonin, adrenaline, dopamine, and glutamate are major neurotransmitters in the central nervous system. Serotonin and adrenaline especially are secreted in response to stress and emotion. All 4 neurotransmitters mentioned are also present in a second, almost pre-historical, and often forgotten brain, called the enteric brain.

This enteric nervous system, located in the gastrointestinal (GI) tract (more precisely in the epithelial lining of the esophagus, stomach, and small and large intestines), is a major subject in the study of neurogastroenterology and plays an important role in irritable bowel syndrome (IBS). According to some researchers, up to 95% of the serotonin

available in the body is located in the GI tract; of this 95%, 90% is in the enterochromaffin cells, and the remaining 10% can be found in enteric neurons. Serotonin plays a key role in the initiation of peristaltic and secretory reflexes.<sup>2</sup>

Although the enteric brain is described as part of the peripheral nervous system, it is also defined as the second brain,<sup>3</sup> in addition to the primary central brain. The central nervous system can influence the enteric brain and vice versa.<sup>3</sup> This could be a possible explanation as to why an emotional stressor or anxiety can indirectly induce IBS.

During stress, the brain will induce, over the brain-gut axis, mast cell degranulation in the intestinal tract. By this degranulation, histamine and phospholipids are set free in large numbers, inducing inflammatory pathways. Activation of the gut immune system may disrupt normal gut motility, leading to common

symptoms such as diarrhea, cramping, and bloating.<sup>4</sup>

The inflamed tissues render the enteric nerves overly sensitive and overactive, deregulating the production of serotonin. Both low and high levels of serotonin can cause problems. The same molecule, when available in a too low or a too high concentration, may induce the same clinical symptom: cramps. As Paracelsus already stated centuries ago, "the dose makes the poison."

Low levels of serotonin are not only associated with depression, short-term memory, and concentration deficits, but also, at the level of the enteric nervous system, with bowel problems such as constipation with spasm (IBS-C). Emotional stress, over the PNEI system, can thus induce changes within serotonin levels at the level of the GI tract and can induce spasms (Figure 1). A stress-related nervous or anxious state will increase the prevalence or intensity of intestinal spasm over the brain-gut axis.<sup>5</sup>

Increased levels of serotonin are associated with intestinal problems too, such as is seen in diarrhea accompanied by cramps (IBS-D).<sup>6</sup> Selective serotonin reuptake inhibitor package inserts often mention both symptoms as possible adverse effects because of the medication-induced decreased reuptake of serotonin and thus the increased serotonin availability and activity levels.

\* Every thought or idea makes the body gravitate to fulfill that thought or idea. William James, *The Principles of Psychology* (1890)

The conventional medical approach to IBS is often the use of antispasmodic agents, such as hyoscine butylbromide, to relieve spasms and cramps. Research in conventional medicine also reports the symptom-relieving effects of benzodiazepines in patients with IBS,<sup>7,8</sup> pointing at the psychogenic factors that increase the physical symptoms over the brain-gut axis. A combination therapy of an antispasmodic medication with a benzodiazepine seems to have synergic therapeutic effects in the relief of IBS symptoms.<sup>9</sup> Treatments aimed at the gut-brain interface are in development, but have been difficult to establish because of adverse effects.<sup>10</sup>

### Bioregulatory treatment

It is thus interesting to look at a bioregulatory approach in these patients. In a comparative study, Nervoheel was found to be noninferior to lorazepam, a benzodiazepine prescribed worldwide, in the treatment of mild nervous disorders.<sup>11</sup> Spascupreel is a bioregulatory antispasmodic medication that will induce symptomatic relief of spasmodic conditions of the intestinal tract. In a comparative study versus hyoscine butylbromide, it was shown to possess a noninferior therapeutic effect in treating intestinal cramps.<sup>12</sup> This effect of Spascupreel can be used in conditions such as IBS, and, if it is applied together with a psychogenic

relaxing drug such as Nervoheel, a synergistic action on the gut-brain axis may be possible. In this way, a bioregulatory alternative can be offered for the combination of antispasmodic agent–tranquilizer in conventional therapy of IBS.

Given the PNEI link between the central and enteric brain and the experience in conventional medicine (i.e., antispasmodic drugs in combination with tranquilizers have a stronger symptom-relieving effect in IBS), it can be stated that Nervoheel might play an important therapeutic role in the bioregulatory relief of IBS symptoms. Although some benzodiazepines are known to be addictive,<sup>13</sup> to my knowledge, no such risk has ever been reported for Nervoheel. Thus, Nervoheel is a safe alternative to benzodiazepines. In the same way, Spascupreel is a safe and effective alternative to hyoscine butylbromide in the symptomatic relief of patients with IBS. Known adverse effects of hyoscine butylbromide include constipation, dry mouth, trouble urinating, and nausea. Other adverse effects, which are very unlikely but reported, include rash, itching, swelling of the hands or feet, trouble breathing, increased pulse, dizziness, diarrhea, vision problems, and eye pain. To my knowledge, none of these adverse effects have ever been reported with Spascupreel.

In conclusion, bioregulatory treatment may offer a viable alternative

in the management of conditions in which the gut-brain interface causes deregulation of the enteric nervous system, the second brain. |

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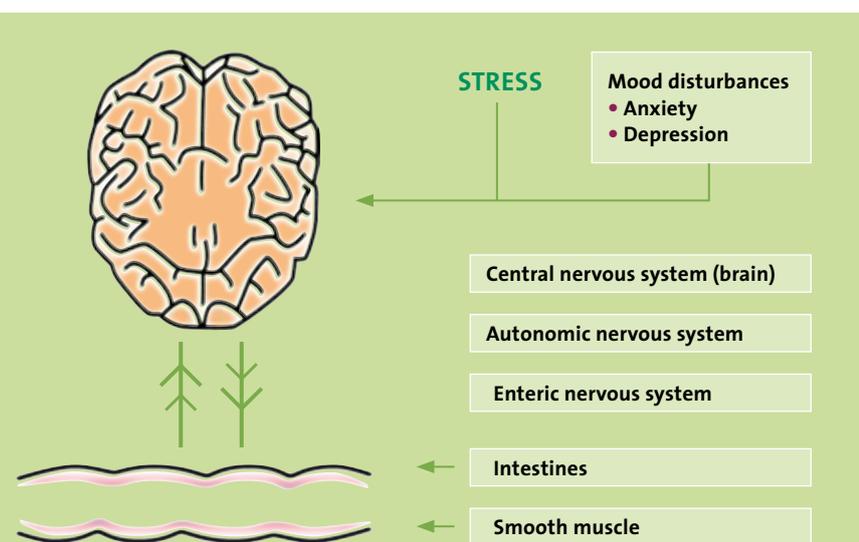


Figure 1: Stress alters the function of the gastrointestinal tract via the brain-gut axis.