

## IS IRRITABLE BOWEL DISEASE A NEUROLOGICAL DISORDER? THE OXIDATIVE STRESS AND INFLAMMATION CONNECTION

Radu Lefter<sup>1,2</sup>, Miruna Ioana Balmus<sup>1</sup>, Anca Trifan<sup>3</sup>, Alin Ciobica<sup>1,2</sup>, Carol Stanciu<sup>2</sup>

<sup>1</sup>*Molecular Biology, Alexandru Ioan Cuza University, Romania*

<sup>2</sup>*Centrul de Cercetari Biomedicale, Romanian Academy, Romania*

<sup>3</sup>*Gastroenterology, "Gr. T. Popa" University, Romania*

[radu\\_lefter@yahoo.com](mailto:radu_lefter@yahoo.com)

Irritable bowel syndrome (IBS) is a symptom-based diagnosis with unknown organic mechanisms, mainly characterized by cramping, abdominal pain and general discomfort of bowel. Still, consistent evidences are lately suggesting that irritable bowel disease may be associated to depression, anxiety, autism, posttraumatic stress disorder, psychological stress and even dementia. Moreover, lately there is an increased interest towards the relevance of the oxidative stress modifications in IBS pathological manifestations.

In this context, we will discuss here about the possible correlation between the neurological effect of oxidative stress and IBS mechanistics. As it is already known, the nervous system is highly susceptible to oxidative damage and inflammation due to its particular lipidic structures and low antioxidant defence. Also, several reports showed that an oxidative stress implication in IBS would be probable, but no mechanism is yet clear. Moreover, some reports are already suggesting a possible pathway of neuroinflammation involved in enteric nerve system impairment that would lead to hyperexcitability followed by impaired intestinal motility. Moreover, it is well possible that a close relationship between neuro-visceral impairments followed by impaired gut-brain axis and IBS gastrointestinal symptomatology to exist. Furthermore, it would be possible that these symptoms to occur in the absence of a nutritional of infectious stimuli and therefore not being characterized by direct inflammation and oxidative stress, but these to occur as collateral effect to impaired neurostimulation.

Based on this information, the correlation between IBS, the neurological impairment of enteric nerve system and oxidative stress/inflammation remains to be further explained and discussed.