

Allergic Reaction, Obesity, Anorexia Nervosa Eating Disorders and Sensitivity to Foods A consequence of non-traumatic brain injury.

A common consequence of the onset of Autistic Spectrum disorders is the development of gastric disorders and other adverse reactions as a result of intake of foodstuffs. The intake of nutrients necessary for the survival of the organ can have such a negative effect on the organ when the nervous system is compromised by an adverse effect.

The manifestation of adverse effects, are usually, selective and restrictive diet (children with ASD often refuse food), constipation, and diarrhea. Individuals on the Autism spectrum are known to be sensitive to foods such as wheat (gluten) and all dairy products (casein).

The sensitivity associated with peptoid response in ASD, is not an allergic reaction with antigen response, but a toxic response.

Adverse effect includes dysregulation of enzymes such as cholecystokinin (CCK) and can lead to conditions such as, anorexia, obesity, Parkinson's disease, schizophrenia and drug addiction.

The etiology of non-traumatic brain injury is discussed elsewhere in web site www.theautismcentre.co.uk

It is speculated that these peptoids, opioid- like molecules, cause the symptoms of autism, and that peptoids may be involved through neuroendocrinimmunological processes involved in the pruning of the CNS cells which occurs in utero and in the early years of infancy. The mechanisms similarly described by Bauman (Purkinje cells) and Courchesne (cerebellum and corpus callosum).

To understand the mechanisms involved to cause the symptoms of autism it is necessary to be aware of the presence of the second brain, better known as the Enteric Nervous System, and its effect on the Central Nervous System.

Gershon in his book "The Second Brain", recognises that the Enteric Nervous System (ENS) provides a window into the brain. This "second" brain is found in the tissue of the esophagus, stomach, small intestine and colon, collectively known as the gut. Previously thought of as simply relay ganglia, the ENS, is now considered to be a complex brain and provided that the vagus nerve is intact, continuous messaging between the brain and the gut is carried out.

Within the ENS lies a complex collection of microcircuitry driven by more neurotransmitters and neuromodulators than found anywhere in the peripheral nervous system. Inside the ENS is nearly every chemical needed for brain function, serotonin, dopamine, glutamate, nitric oxide, neuropeptides, immune components, enkephalines, and enzymes. According to Kane, children with ASD, show complicated Glycemic Index aberration along with their CNS disturbance, and the impact on the second brain has to be taken into account.

Central Nervous System disturbance in Autism Spectrum Disorder has a principal effect on the regulation of all the brain chemicals, in particular one of the enzymes, cholecystokinin (CCK). CCK acts as a neuropeptide in the ENS affecting the intestine, pancreas and gallbladder. CCK acts as hormone, by regulating pancreatic enzyme secretion, gallbladder contraction, gastric emptying, plays an important role in insulin release, both by binding to receptors on B cells and neural regulation of insulin. CCK stimulates the action of secretin on pancreatic bicarbonate secretion, helps in the regulation of gastric emptying and stimulates intestinal activity.

CCK is the most abundant neurotransmitter acting in the brain, CCK-8, the octapeptide form found in the brain plays an important modulatory role in regulating GABAergic neuronal activity stimulating speech. **This neuropeptide CCK is implicated in the regulation of food intake, and the sensation of satiety**, by the relationship with dopaminergic (DA) neurons from the mesencephalon projecting to the limbic forebrain and the ventromedial hypothalamus. CCK -DA containing pathways are related to human neuropsychopathologies including schizophrenia, Parkinson's' disease and drug addiction.

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