Neurotransmitter Assessment Form Interpretation

Notice *The nutritional protocols listed below are what I use in my clinic for systemic health as is it relates to health and function. Please note that although they are listed under conditions, they are only intended to support health and natural medicine processes under stress from conditions, or to address additional demand for nutrients. These recommendations should not be construed as claims to treat, cure, or prevent disease as they are not intended to act as drugs nor replace any drug prescribed by a physician. Such an act may be detrimental to the health and well-being of a patient and that dietary supplements should only be used in a supportive role in such conditions. Additionally, carefully screening for drug-nutrient reactions must always be considered.*

SECTION A – GENERAL BRAIN FUNCTION

Section A categorizes symptoms associated with general loss of neurotransmitter and brain function. The symptoms are not specific to any neurotransmitter in general, but rather reflect symptoms found in common with a decline in response of any of the neurotransmitters. Prevalence of these symptoms may also indicate early signs of brain aging and degeneration. Symptoms alone cannot determine the degree of neuronal death versus the amount of deficit associated with loss of neurological integration, secondary to loss of neurotransmitter responses and other physiological factors that hinder brain performance. The subsequent sections will help determine potential areas of deficit leading to general loss of central nervous system outcome. Prevalence of these symptoms should alert both the patient and clinician about the potential for progressive loss of brain health. Immediate attention should be placed on improving further degeneration and improving existing neuronal potentials. It is important to understand that brain function is not solely limited to cognitive attributes, but to autonomic, endocrine/metabolic and immune function as well. A loss of central nervous system integrity has global impacts on health and may contribute to hypertension, erectile dysfunction, digestive disorders, constipation, insomnia, etc.

Clinical Considerations: Nutritional support for general brain function should always include a rich source of essential fatty acids and methyl donors. The brain is comprised of phospholipids and strongly influenced in its function by rich sources of fatty acids such as EPA and DHA. Methyl donors are important for many neurotransmitter biochemical processes and are also used for the production of myelin. VITAMIN B12 provides a rich source of micronized sublingual methylcobalamin, which should always be considered when supporting the brain or neurotransmitter physiology.

SECTION B - STRESS

Section B categorizes symptoms associated with an active stress response. Stress is the most aggressive challenge to the neuroendocrine-immune system and is a major cause for loss of neurotransmitter-endocrine and immune integrity. Prevalence of section B symptoms signifies person pushing themselves or being pushed past a normal degree of health. Despite the ability to make lifestyle and career choices, attempts to modulate stress physiology should always be considered.

Section B Clinical Considerations: Stress physiology profoundly alters central nervous system neurotransmitters balance. Natural compounds such as phosphatidylserine have demonstrated abilities to modulate the balance of neurotransmitters during and after stress responses. Consider a high dose of phosphatidylserine in a liposomal delivery form such as Apex's Adrenacalm (K16). Adrenal adaptogens such as Apex's Adaptocrine (K2) could be considered to modulate alterations of neurotransmitters from stress.

SECTION 1 – SEROTONIN

Serotonin is a monoamine neurotransmitter and also called 5-hydroxytryptamine, or 5-HT. Serotonin is found in the central nervous system and in the peripheral nervous system. Serotonin produced in the central nervous system is associated with functions such as anger regulation, body temperature, mood, sleep, vomiting, and appetite. Serotonin in the peripheral nervous system has been associated with gastrointestinal tract motility, pain modulation, vasoconstriction and as a promoter of cell division (mitogenic activity). Serotonin synthesis is linked to pineal gland production of melatonin. Imbalances in these pathways may lead to insomnia, altered sleeping cycles, behavioral changes in response to the cycles of the seasons, sexual activity, and thermogenesis.

SECTION 2 - DOPAMINE

Dopamine is a neurotransmitter that is found both in the central nervous system and in peripheral glands such as the adrenal medulla and the kidneys. Dopamine has numerous functions in the brain related to motor coordination, motivation and reward, cognition, regulation of prolactin, mood, attention, and learning. Dopamine is associated with the “pleasure system” of the brain and promotes feelings of enjoyment and reinforcement to motivate performance. Dopamine is usually thought of as a transmitter of arousal of physical and psychological activity.

SECTION 3- GABA

Gamma-aminobutyric acid (GABA) is the chief inhibitory neurotransmitter of the nervous system. The great majority of GABA is found in the central nervous system, although there are trace amounts of GABA in the pancreatic islet cell and in the kidneys. The trace amounts of GABA produced outside of the central nervous system cannot cross the blood-brain barrier. GABAergic responses are linked with relaxation, anti-anxiety, and anti-convulsive effects. GABA has also demonstrated some properties in modulating the release of human growth hormone.

SECTION 4 - ACETYLCHOLINE

Acetylcholine is produced both in the central nervous system and in the peripheral nervous system. In the central nervous system, acetylcholine is used to promote excitatory actions for cognition, memory, and arousal. In the peripheral nervous system, acetylcholine is a major neurotransmitter for the autonomic nervous system released at all pre- and post-ganglionic parasympathetic neurons and all preganglionic sympathetic neurons, which promote the release of epinephrine and norepinephrine from the adrenal medulla. Acetylcholine is also used to activate muscles by promoting opening of ligand sodium channels in the cell membrane of muscles that lead to muscle contraction. Acetylcholine induces contraction of skeletal muscles, however, diminishes contractions of cardiac muscles as well. This difference is promoted due to the differences of receptors found in these different muscle tissues.