Nutritional Psychiatry & Bipolar Disorder

Bipolar disorder (BD), a complex and often debilitating mental health condition characterized by marked fluctuations in mood and energy often presents as a swing from depression to mania. Manic episodes can include grandiose thinking, rapid speech, reduced need for sleep, impulsivity, risk taking, and possibly psychosis.

The etiology of BD is unclear, but recent research has uncovered potential genetic, epigenetic, and environmental factors. Researchers have suggested the existence of an interplay between oxidative stress, mitochondrial dysfunction, inflammation, and immune dysfunction may govern the disorder. Elevated oxidative stress levels can damage cells, DNA, and mitochondria, and may contribute to immune and neurocognitive dysfunction in BD, including altered levels of neurotransmitters that affect mood. Individuals with BD tend to have increased inflammatory markers, which can indicate high levels of inflammation systemically and neurologically. Additionally, some studies have found imbalances in the microbiota of people with BD, which can contribute to inflammation, oxidative stress, and immune dysfunction.

Nutrition Strategies

Data from observational studies indicates that individuals with BD tend to have lower blood levels of the omega-3 fatty acids EPA and DHA, essential to neuronal function, and higher ratios of omega-6 to omega-3 fatty acids, which have been linked with higher levels of inflammatory markers. Additionally, some studies have found that individuals with BD had lower levels of many essential micronutrients, including iron, zinc, manganese, selenium, folate, vitamin B12, and vitamin D. Lower levels of the antioxidant vitamins A, E, and C have been associated with higher oxidative stress levels in individuals with BD.

Polyunsaturated Fatty Acids (PUFAs)

Research indicates that increasing intake of omega-3 fatty acids may be beneficial for lowering inflammation levels and possibly reducing some symptoms in people with BD. A 12-week randomized, controlled-trial including 82 participants with BD found that increasing dietary omega-3 fatty acid intake (to 1,500 mg of EPA and DHA daily) while lowering omega-6 intake significantly reduced their mood and energy fluctuations compared with the control group following a typical American diet (with 150 mg of omega-3s daily). Additionally, providing omega-3 fatty acid supplements to participants with BD has shown improved symptoms in some interventional studies.

Antioxidant Support

CoQ10 occurs naturally in the human body, but levels decline with age, depression, and medical illness. The CoQ10 plays a role in several processes that are impaired in bipolar disorder: mitochondrial function, inflammation, and oxidative stress. CoQ10 is also neuroprotective by increasing the level of brain-derived neurotrophic factor and protecting the hippocampal cells against injury. Serotonin is another possible avenue for its antidepressant effects. One small trial including 69 participants with BD found that providing 200 mg CoQ10 supplements daily for eight weeks led to improvements in inflammatory markers and depression levels compared with participants taking a placebo.

Magnesium

Magnesium may help ease manic episode symptoms of irritability, anxiety, and insomnia for people already deficient in it. Magnesium relaxes the nerves — both the neurotransmitters that communicate stress and distress to the brain.

Zinc

Zinc deficiency can induce depression, while increasing your zinc intake may improve your mood and cognitive function. The researchers suggest that zinc supplementation could be advantageous for individuals with neuronal or neurodegenerative diseases, as well as those with mood disorders, including bipolar disorder. They further propose that zinc, when taken alongside low-dose antidepressants, might not only enhance treatment efficacy but also help alleviate some of the negative side effects of different types of depression.

We believe that ongoing research may shed more light on this complex disorder and identify the most effective nutrition strategies for individuals with BD. Considering the role inflammation plays in BD and the potential of antioxidant-rich foods to reduce oxidative stress, future nutrigenomic research will likely be a key direction for advancing nutrition-based approaches to support patients with BD.