Nourishing our Nerves: Neurotropic B Vitamins and Their Role in Nerve Care

Overview of neurotropic B vitamins

Neurotropic B vitamins are a combination of vitamins that play an important role in the health of the nervous system; they nourish and help regenerate nerves. These vitamins, thiamine (B1), pyridoxine (B6), and cobalamin (B12), are naturally obtained by eating meat, eggs, and grains.1,2

Because of the unique roles each of the neurotropic vitamins play in the health of the nervous system, all of them are essential, and a combination of all three may be needed to treat deficiencies. In an animal model, a combination of neurotropic B vitamins was found to be more effective at alleviating symptoms of neuropathy than B1, B6, or B12 given alone.10

Deficiencies in neurotropic B vitamins

Neurotropic B vitamin deficiencies occur for various reasons, such as malabsorption (e.g. post-bariatric surgery), low intake due to malnutrition or specific nutritional habits e.g. vegetarians, increased demand (e.g. pregnancy), or increased loss or malfunction associated with certain disease states (e.g. renal disease).

Many conditions that cause B vitamin deficiency are chronic and/or irreversible, such as diabetes, renal impairment, gastrointestinal diseases, and advanced age.5,11 These patients should be monitored and potentially treated as long as the condition causing B vitamin deficiency is present (e.g. long term treatment may be required). In most of these conditions, patients are deficient in all three neurotropic B vitamins – B1, B6 and B12.

Symptoms of B vitamin deficiency vary. Neurological symptoms can include sensory disorders, peripheral neuropathy, polyneuritis, and weak muscle reflexes and/or coordination disorders (including gait impairment). Other possible symptoms are tiredness, hyperhomocysteinaemia, anaemia, cardiovascular dysfunction, or (in chronic deficiency) emotional disturbance.3,5,7,12-14

In cases where B vitamin deficiency is suspected, neurotropic B vitamin supplementation is a well-tolerated approach to provide treatment. Some deficiency-related disease/symptoms can be reversed with neurotropic B vitamin supplementation.15 However, early diagnosis is crucial for avoiding irreversible neurological damage.54

At therapeutic levels, neurotropic B vitamins have been shown to have a restorative effect on peripheral nerve health via different mechanisms. The neurotropic B vitamins contribute to nerve health via different mechanisms.
The levels of B vitamins present in a healthy diet do not provide these pharmacological effects and would not serve the needs of patients at risk.

For vitamin B deficiencies associated with chronic disease or which are irreversible, long-term treatment with a pharmacological dose of neurotropic B vitamins may be required.  

### References