"Nourishment for nerves"

What is the role of vitamin intake in neurological-psychiatric disorders?

Berlin – A risk factor that should not be underestimated with respect to neurological-psychiatric disorders is the insufficient availability of specific micronutrients. This was suggested by scientists at a symposium held by the Gesellschaft für Biofaktoren e.V. (GfB) (German Society for Biofactors) on 7th November 2015 in Berlin.

Although here in Germany a wide and varied range of foods is available, larger population groups show shortfalls in the supply of certain vitamins and minerals. The reasons for this include incorrect and poor nutrition, diseases and disorders, and age-related absorption issues in the gastrointestinal tract, which can also be caused by specific medications, clinical pharmacologist Professor Dr. Dr. Dieter Loew explained. These deficiencies often go undetected. Why is this? "The symptoms of a deficiency are insidious", according to Loew. At the start, they can appear as an unclear, often unrecognised clinical disease picture, and usually, where a latent deficiency is present, with masked symptoms.

B vitamins: Even slight deficiencies impair the function of the brain and nervous system

Knowledge obtained over recent years has shown that pronounced B vitamin deficiencies are rare and that slight or moderate deficiencies are more common. They are often not detected during a diagnosis, Professor Dr. Karlheinz Reiners, Vice Director of the Neurological Clinic and Polyclinic at Würzburg University Hospital, and Scientific Director of the Symposium, explained. Inadequate levels of almost all B vitamins, however, can lead to serious sensory disorders of the brain and nerve function.

According to the neurologist, even in the short-term, a vitamin B1 deficiency can cause a reduction in performance in various parts of the nervous system: in the brain, cognitive potential is lowered, even leading to the onset of dementia. In the peripheral nervous system, a vitamin B1 deficiency mainly provokes polyneuropathy. Low levels of vitamin B12 in the diet can have serious effects on the nervous system and mental health. Depressive moods, cognitive deterioration, even dementia, and neurologically, funicular spinal cord disease or myelosis can be the result.

The fact that B vitamins have not only a preventive, but also a therapeutic potential, was highlighted by Professor Hilmar Stracke, Vice Director of the Medical Clinic and Polyclinic III at the University Hospital of Giessen and Marburg: "In the pathogenetically-based treatment of diabetic polyneuropathy, B vitamins – in particular, the vitamin B1 precursor benfotiamine – are of vital importance“, the diabetologist explains. In randomised, placebo-controlled double-blind trials, it has been shown that benfotiamine - sometimes administered as a monotherapy, sometimes in combination with other neurotropic B vitamins - can improve both nerve conduction velocity and clinical symptoms, pain in particular, in patients with diabetic neuropathy.
Vitamin D in multiple sclerosis and infections of the central nervous system

Some neurological disorders are also linked to a vitamin D deficiency. The immune modulating effects of the "sunshine vitamin" could play a preventive role, for example in MS, as highlighted by Dr. (Lecturer) Mathias Buttmann, Consultant and Director of the Special Outpatients Clinic for Multiple Sclerosis at the Neurology Clinic and Polyclinic of Würzburg University Hospital. "Over the last few years, a series of epidemiological studies has provided persuasive evidence that the probability of developing multiple sclerosis has an inverse correlation with serum vitamin D levels, and in existing disease states, a lowered vitamin D level correlates with elevated disease activity", Buttmann explains.

The powerful effects of vitamin D on immunity also appear to be important in bacterial CNS infections, as shown by the recent results of a study led by Dr. (Lecturer) Marija Djukic of the Institute for Neuropathology at Göttingen University Clinic and Senior Consultant at the Geriatric Centre of Göttingen-Weende Evangelical Hospital. For the first time, in animal experiments, she and her working group were able to prove that a lack of vitamin D lowers the ability of the immune cells in the brain (microglia) to kill bacteria.

The effects on the brain exerted by biofactors are also under investigation as part of research into Alzheimer’s. Here, the Mediterranean diet, with its high content in polyphenols and vitamins is the main focus, according to Professor Dr. Gunter P. Eckert, who heads up the "Nutritional Neuroscience" working group at Goethe University in Frankfurt. "The latest research shows that polyphenols and vitamins boost the ability of the brain to defend itself against harmful oxygen compounds and to improve energy metabolism", Eckert explains.

Source: Symposium of the German Society for Biofactors "Biofactors in the Prevention and Treatment of Neurological-Psychiatric Diseases", 7th November 2015 in Berlin