Practical recommendation: Detecting vitamin B_{12} deficiency and administering oral therapy more often

According to a study published in 2019, Canadian senior citizens often received vitamin B_{12} as an injection in cases where oral supplementation with the biofactor, which is less expensive and more convenient for the patients, would have achieved the same success. The scientists also emphasised that almost 40% of those examined had no diagnostic evidence of vitamin B_{12} deficiency before the injection.

According to the authors of the study, 20% of Canadian senior citizens have vitamin B_{12} deficiency.[1] In Germany, the figures are similar: approx. one in four people over the age of 65 suffers from vitamin B_{12} deficiency,[2] with the figure among senior citizens in nursing homes even being as high as 40%.[3]
In order to be able to detect the vitamin B_{12} status and compensate for a deficiency by means of supplements, vitamin B_{12} diagnostics should be integrated into everyday practice since – according to the Canadian scientists – supplementation without any proven deficiency is not only ineffective, but also causes unnecessary costs for the health care system.

Vitamin B_{12} supplementation required?

The experts from the Society for Biofactors (GfB) also emphasise how important regular diagnostic checks are in order to detect vitamin B_{12} deficiency and that the possibility of vitamin B_{12} substitution by means of oral administration is a relief for many patients. Even in patients with absorption disorders, vitamin B_{12} deficiency can be compensated for by high-dose oral supplementation – independently of the intrinsic factor by passive diffusion through the intestinal mucosa.[4] Studies have also shown that oral high-dose therapy with 1,000-2,000 µg of vitamin B_{12} is better tolerated than intramuscular injection in cases of absorption disorders.[5,6]
“Only in patients with severe neurological diseases or pernicious anaemia is parenteral substitution initially necessary, and this can be continued orally,” confirmed Prof. Karlheinz Reiners, who is a neurologist and member of the Scientific Advisory Board of the Society for Biofactors.

Early diagnosis of vitamin B_{12} deficiency is important

In practice, vitamin B_{12} deficiency can be overlooked as it develops insidiously and initial symptoms such as tiredness, concentration problems or fatigue are non-specific. However, the disorders of erythropoiesis with the development of megaloblastic anaemia and the neurological consequences can also be associated with serious diseases.[1]

While the blood count changes are characteristic and confirm the diagnosis of a deficiency, the neurological complaints are many and varied and are not always recognised as deficiency symptoms. “The early diagnosis of vitamin B_{12} deficiency is therefore essential, not only because the neurological disorders often precede the haematological abnormalities or occur entirely without blood count changes, but also because neurological symptoms can become irreversible,” warns the medical practitioner Reiners.

Where does vitamin B12 deficiency start?

Total vitamin B_{12} serum blood levels between 200 and 1,000 ng/l are considered normal values, whereas values below 200 ng/l are proof of a definite deficiency. However, total vitamin B_{12} is a late, comparatively insensitive and inaccurate biomarker of vitamin B_{12} deficiency.[8,9]. For blood levels between 200 and 400 ng/l it is advisable to measure holotranscobalamin (holo-TC), which reflects the status of the actual active vitamin B_{12}. Holo-TC values below 35 pmol/l indicate vitamin B_{12} deficiency. The “grey area” in which clinical or haematological symptoms may be absent is between 36 and 55 pmol/l.[7] Then methylmalonic acid (MMA) and homocysteine should be measured, which are two functional indicators of vitamin B_{12} deficiency. If, in addition to a low holo-TC level, the MMA (> 300 nmol/l or > 0.4 µmol/l) and homocysteine levels are elevated (> 10 µmol/l), manifest vitamin B_{12} deficiency is present intracellularly.

Conclusion of the Society for Biofactors

In senior citizens in particular, attention should be paid to the optimum vitamin B_{12} status, any potential deficiency clarified diagnostically and, in the case of a positive finding, compensated for by targeted supplementation. High-dose oral vitamin B_{12} therapy is recommended, with initial parenteral administration – which can be continued orally – only for patients with severe neurological diseases or pernicious anaemia.

Further information on vitamin B_{12} and other biofactors can be found here.

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