Zeit für gute Vorsorge …
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B VITAMINS SAFE AND EFFECTIVE IN THE PROPHYLAXIS OF CARDIOVASCULAR DISEASES

With the increase in life expectancy in the European population, the typical diseases of old age and their risk factors are increasingly becoming the focus of interest. The focus is on cardiovascular diseases, which are currently the most common cause of death in industrialized countries. A large number of studies have been able to prove the involvement of an elevated homocysteine level in cardiovascular events and thus offer an explanation for cases that could not be explained with the risk factors known to date.

Hyperhomocysteinemia is considered an independent risk factor responsible for about 10% of cardiovascular diseases and thus corresponds to the value of smoking and hyperlipidemia (increased blood lipid levels). The interaction of homocysteine with other risk factors disproportionately increases the overall risk, which is why the detection of elevated homocysteine levels in patients with a generally high risk profile for vascular diseases is of particular importance.

Homocysteine as a metabolic product of the essential (only to be obtained through nutrition) amino acid methionine (protein building block) can cause cell damage mediated by oxidative stress reactions up to cell destruction in the event of insufficient degradation. The cardiovascular system is particularly affected, as there is no irreversible degradation in the endothelial cells (cells that line the blood vessels) and they are exclusively dependent on folate and vitamin B12-dependent remethylation (metabolic process). Hyperhomocysteinemia leads to a loss of antithrombotic endothelial function (protection against thrombosis) and the creation of a thrombosis-promoting environment. The most common causes of elevated homocysteine levels are a deficiency of vitamins B12, B6 and folic acid, as well as the natural decrease in kidney function with age. In addition, lifestyle factors, genetic influences, diseases and a variety of drugs can be responsible for hyperhomocysteinemia. Comprehensive information can also be found at the Society for Nutritional Therapy and Prevention: www.fet-ev.eu

An increase in homocysteine levels >12µmol is expected in 5-10% of the general population and 40% of patients with vascular diseases. Since homocysteine has a gradual relationship to the increase in risk already for values below 10µmol/l without threshold and each µmol/l is associated with a 6-7% increase in risk, it is required to determine and treat an increased homocysteine concentration in high-risk groups and patients with already existing vascular diseases. First of all, a determination of the homocysteine level should be carried out, after the result of which the further therapeutic procedure is directed. For practical use, risk areas for cardiovascular disease have been defined. As a therapeutic goal, plasma levels <10, better still below 8µmol/l are targeted.

For healthy people or people with a low risk profile, prophylactic vitamin supplementation in the sense of a "low dose" supplement is recommended: 0.2 – 0.8mg/d folic acid, 3 – 30µg/d vitamin B12 and 2 – 20mg/d vitamin B6. The adequate supply of at least 400µg of folic acid per day is difficult to achieve even with a balanced diet, which is why the consumption of

folic acid-enriched foods and supplementation with vitamin preparations makes sense.

In patients at risk for vascular diseases, the reduction in homocysteine levels by vitamin supplementation depends on the baseline values and is correspondingly greater at higher baseline values. A reduction of 16 – 39% (standardized to 12µmol/l by an average of about 25%) can be expected by folic acid administration between 0.2 and 5mg daily.

It should not be treated with folic acid alone, but only in combination with vitamin B12 to avoid a relative folate deficiency ("folate trap"). If a homocysteine level is found in the moderately elevated range, a vitamin supplement of about 0.2 – 0.8mg folic acid, 3 – 30µg vitamin B12 (old patients for malabsorption at least 100µg) and 2 20mg vitamin B6 should be started. If an reduction in the range <10µmol/l homocysteine is achieved within 4 weeks, only semi-annual, later annual check-ups are necessary. If, on the other hand, the effect is unsatisfactory, the dosage of folic acid should be increased, e.B. to 1 – 5mg folic acid / day. If the elevated homocysteine level persists, other causes must be investigated, such as renal dysfunction, disorders of thyroid function and congenital enzyme deficiencies. The conversion or dose reduction of certain drugs can also lead to an effective reduction in homocysteine levels.

Through the listed simple, cheap, safe and effective measures to reduce homocysteine levels, not only the incidence of cardiovascular diseases can theoretically be reduced to 25%, but also the risk of other age-related diseases such as senile dementia and stroke. Rarely, there is such a favorable cost-benefit factor with an effective therapy option. Before making recommendations for the general determination and treatment of elevated homocysteine levels, even in healthy people, the results of ongoing intervention studies must first be awaited.

after Stanger O, Herrmann W, Pietrzik K, Fowler B, Geisel J, Dierkes J, Weger M; DACH-LIGA Homocystein e.V. Salzburg, Österreich

DACH-LIGA Homocystein (German, Austrian and Swiss Homocystein society): consensus paper on the rational clinical use of homocysteine, folic acid and B-vitamins in cardiovascular and thrombotic diseases: guidelines and recommendations

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