Nutritional Influences on Illness
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Supplements to Treat Headaches

Headaches can often be prevented or relieved by the proper nutritional supplements. We will review the three supplements that have gathered the most supporting data for their efficacy.

Magnesium

The reactivity of vascular and other smooth muscle cells is highly dependent upon the ratio of calcium to magnesium. A chronic magnesium deficit disturbs that ratio, producing a state of neuromuscular hyperexcitability. It is therefore not surprising that, in people who are genetically predisposed to migraine headaches, recurrent migraine attacks are associated with widespread evidence of a chronic magnesium deficit, with reduced levels of magnesium in the brain, mononuclear blood cells, red blood cells, blood serum, and saliva. There is also evidence of reduced magnesium in premenstrual migraine, menstrual migraine, and in pre-eclampsia, a condition of late pregnancy that is strongly associated with a migraine history.

Intravenous magnesium often aborts a migraine within a few minutes. When 40 consecutive patients with frequent migraines were given a five-minute IV infusion of 1 gm of magnesium in a ten-percent solution following the start of a headache, 86% of the 21 patients with low initial serum levels of ionized magnesium had complete relief within 15 minutes; that relief lasted for at least 24 hours. By contrast, only three of the 19 patients (16%) with normal magnesium levels responded.

While injections are the most rapid method of increasing magnesium nutriture, oral magnesium can provide longer-term headache prevention, especially if there is evidence of magnesium deficiency. It has been found effective under double-blind conditions for migraine headaches in general as well as for menstrual migraines.

Since roughly 70% of patients with tension-type headache exhibit muscular tightness and tenderness, members of this group of headache patients who are magnesium-deficient may also benefit from magnesium supplementation. Two uncontrolled studies of children and adolescents found excellent results using magnesium pidolate 2.25 g twice daily. In the first study, all nine subjects reported pain reduction of greater than 50%. In the second, 45 subjects reduced analgesic consumption by 65%, while headache days were reduced by 70%.

Riboflavin

In a randomized, controlled study, 55 migraineurs received either riboflavin 400 mg or placebo for three months. Riboflavin was statistically superior to placebo in reducing both attack frequency and the number of headache days. The proportion of patients whose number of headache days decreased by at least half was 59% for riboflavin vs. only 15% for placebo, a significant difference. These findings confirm those of an earlier open trial. In that study, 80% of migraineurs treated with riboflavin had a 50% or greater reduction of monthly migraine days.

Coenzyme Q10

Among migraineurs, deficiency of coenzyme Q10 (which improves energy metabolism similarly to riboflavin) appears to be common. Of a group of 1550 child and adolescent migraineurs, one-third was found to be deficient.

In an open trial, 31 subjects with a history of episodic migraine with or without aura received coenzyme Q10 150 mg daily. Almost two-thirds had a greater than 50% reduction in the number of headache days; the average was 7.34 headache days before treatment vs. 2.95 days after three months of supplementation, a highly significant difference. These results were confirmed by a double-blind randomized trial in which 42 migraineurs received either CoQ10 100 mg three times daily or placebo. In the third treatment month, CoQ10 was superior to placebo for attack frequency, headache days, and days with nausea.

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