Coenzyme Q10 for Migraine Prevention

Health Canada has approved Coenzyme Q10 for the following claim: “Helps to reduce the frequency of migraine headaches and associated nausea and vomiting when taken as a prophylactic.

Open label trial of coenzyme Q10 as a migraine preventive

Abstract

The objective was to assess the efficacy of coenzyme Q10 as a preventive treatment for migraine headaches. 32 patients (26 women, 6 men) with a history of episodic migraine with or without aura were treated with coenzyme Q10 at a dose of 150 mg per day. 31 of 32 patients completed the study; 61.3% of patients had a greater than 50% reduction in number of days with migraine headache. The average number of days with migraine during the baseline period was 7.34 and this decreased to 2.95 after 3 months of therapy, which was a statistically significant response (P < 0.0001). Mean reduction in migraine frequency after 1 month of treatment was 13.1% and this increased to 55.3% by the end of 3 months. Mean migraine attack frequency was 4.85 during the baseline period and this decreased to 2.81 attacks by the end of the study period, which was a statistically significant response (P < 0.001). There were no side-effects noted with coenzyme Q10. From this open label investigation coenzyme Q10 appears to be a good migraine preventive. Placebo-controlled trials are now necessary to determine the true efficacy of coenzyme Q10 in migraine prevention.

Dosage and potential side effects:

The dosage recommended and used in the study is 150 mg of coenzyme Q10 daily. As for potential side effects, the study showed:

“In most instances coenzyme Q10 administration has been very well tolerated in doses up to 600mg per day, with an excellent side-effect profile. The most common side-effects pertain to the gastrointestinal system and include nausea, diarrhea, appetite suppression, heartburn and epigastric discomfort. In large studies the incidence of gastrointestinal side-effects is less than 1%.”

As for side effects, coenzyme Q10 has few, and rarely is the incidence of side effects of any medication or supplement less than 1%. This is an excellent side effects profile.

Key points from the trial:

- 61.3% of the patients in the trial achieved at least a 50% reduction in frequency of Migraine attacks by the end of the four-month trial.
- As with most Migraine preventives, it takes time to achieve optimum results. Data from the study suggest that it takes five to 12 weeks to achieve more than a 50% reduction.
- Coenzyme Q10 is effective for both Migraine without aura and Migraine with aura.

The bottom line from this study:

“Coenzyme Q10 looks to be an excellent choice for initial therapy for prevention of episodic migraine if confirmed by controlled studies of efficacy. It can be given to almost any age group without fear of significant side-effects.”

Hershey et al Study

Hershey et al conducted a study with the stated objective to, “This study documents the prevalence of CoQ10 deficiency in migraine headache and examines the potential effectiveness of supplementation.” They found CoQ10 deficiency to be common in pediatric and adolescent Migraineurs and supplementation to be beneficial.
Summary:
Although research and development of Migraine abortives has made great strides in recent years, work on preventives has been woefully lacking. None of the medications used for Migraine prevention were originally developed specifically for that purpose, and trials of drugs being used off-label for Migraine prevention have been so few that only one drug has actually been approved by the FDA for Migraine prevention (Depakote). This trial of coenzyme Q10 is important because of its excellent results and because it is for a Migraine preventative rather than another Migraine abortive.

Efficacy of Ginkgolide B in the prophylaxis of migraine with aura

Abstract
In a multicentric, open, preliminary trial, we evaluated the use of ginkgolide B, a herbal constituent extract from Ginkgo biloba tree leaves, in the prophylactic treatment of migraine with aura (MA). Fifty women suffering from migraine with typical aura, or migraine aura without headache, diagnosed according to International Headache Society criteria, entered a six-month study. They underwent a two month run-in period free of prophylactic drugs, followed by a four month treatment period (subdivided into two bimesters, TI and TII) with a combination of 60 mg ginkgo biloba terpenes phytosome, 11 mg coenzyme Q 10, and 8.7 mg vitamin B2 (Migrasoll), administered twice daily. A detailed diary reporting neurological symptoms, duration, and frequency of MA was compiled by patients throughout the trial. The number of MA significantly decreased during treatment (from 3.7 +/- 2.2 in the run-in period, to 2.0 +/- 1.9 during TI and to 1.2 +/- 1.6 during TII; Anova for repeated measures: P < 0.0001). There was also a statistically significant decrease in the average MA duration, which was 40.4 +/- 19.4 min during run-in, 28.2 +/- 19.9 during TI, and 17.6 +/- 20.6 during TII. Total disappearance of MA was observed in 11.1% patients during TI and in 42.2% of patients during T2. No serious adverse event was provoked by Migrasoll administration. Ginkgolide B is effective in reducing MA frequency and duration. The effect is clearly evident in the first bimester of treatment and is further enhanced during the second.

Ginkgolide B complex efficacy for brief prophylaxis of migraine in school-aged children: an open-label study

Abstract
Primary headaches (migraines and tension-types headaches) are very common in school-aged children. Ginkgolide B, a herbal constituent extract from Ginkgo biloba tree leaves, was considered as a promising pharmacological aid for the treatment of migraine in adult patients because of its modulation of the glutamatergic transmission in the CNS and on antiplatelet activating factor (PAF). The aim of study is to verify the effectiveness and safety of association of Ginkgolide B/Coenzyme Q10/Riboflavin/Magnesium complex for brief prophylaxis in a population of school-aged children with migraine. In our sample after 3 months of treatment with association of Ginkgolide B/Coenzyme Q10/Riboflavin/Magnesium complex, the mean frequency per month of migraine was significantly decreased (9.71 ± 4.33 vs. 4.53 ± 3.96 attacks; p < 0.001). Our findings suggest that in childhood headache management, the use of alternative treatments must be considered not to evoke a placebo effect, but as soft therapy without adverse reactions.
Role of Magnesium, Coenzyme Q10, Riboflavin, and Vitamin B12 in migraine prophylaxis

Abstract

Migraine is a neurovascular syndrome characterized by recurrent headache associated with other symptoms, eventually preceded by aura. This chapter reviews the involvement of some mineral, coenzyme, and vitamin defects in the pathogenesis of migraine headaches and focuses on their potential therapeutic use in the preventive treatment for migraine. The therapeutic potential of magnesium, coenzyme Q(10), riboflavin, and vitamin B(12) can be cautiously inferred from some published open clinical trials; it should, however, be considered that double-blind randomized larger studies are needed to correctly estimate the impact of the placebo effect in these promising therapies.

References:

1 Rozen, TD, Oshinsky, ML, Gebeline, CA, Bradley, KC, Young, WB, Shechter, AL & Silberstein, SD. "Open label trial of coenzyme Q10 as a migraine preventive." Cephalalgia 22 (2), 137-141.


3 Coenzyme Q10 (PDQ®). National Cancer Institute.

4 Jefferson Headache Center/Thomas Jefferson University, Philadelphia, Pennsylvania, USA.

5 Headache and Cerebrovascular Center, Villa Margherita Neurology Clinic, Arcugnano, 36057, Vicenza, Italy. G iovidavi@virgilio.it

6 Department of Child and Adolescent Neuropsychiatry, Center for Childhood Headache, Second University of Naples, Via Sergio Pansini 5 PAD XI A, 80131, Naples, Italy.

7 Bianchi A1, Salomone S, Caraci F, Pizza V, Bernardini R, D'Amato CC. Department of Pharmaceutical Sciences, University of Salerno, 84084 Fisciano, Italy.

Summary:

Ubiquinone is manufactured by the body with the help of Pyridoxyl-5'-Phosphate. Ubiquinol is not manufactured directly by the body, but is produced by the breakdown of Ubiquinone as part of the Q cycle.

In spite of what the promoters of Ubiquinol claim there has been very little scientific evidence that Ubiquinol supplements are equal to, much less better than Ubiquinone in terms of biological activity or therapeutic benefit. Ubiquinol became commercially available in 2006, and to date there have been no clinical studies in human beings comparing Ubiquinone to Ubiquinol that have been published in peer reviewed scientific literature.

The most critical aspect of CoQ10 supplementation is absorption. Ubiquinone formulas that incorporate synergists such as Pyridoxyl-5'-Phosphate and Phosphatidylcholine, and use the new DRcaps for enhanced intestinal absorption offer the most biologically active and cost effective way to CoQ10 supplementation and should be the supplement of choice.

Note: in all of these studies Ubiquinone, not Ubiquinol was used.