



America – Fast Food Nation

PIC QUESTION OF THE WEEK: 7/27/09

Q: Is supplementation with Co Q10 effective in reducing the severity of statin-induced myopathy?

A: The most popular medications for treating hypercholesterolemia are the 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase inhibitors, otherwise known as the *statins*. During the biosynthesis of cholesterol, these drugs inhibit the conversion of HMG-CoA to mevalonate. They are generally well-tolerated, but occasionally result in dose dependent and variable degrees of myopathy. The myopathy can be limited to muscle pain and weakness, but may escalate to rhabdomyolysis that is characterized by significant increases in plasma creatine kinase (CK) and myoglobin values. This heme-related protein may also precipitate in the urine resulting in acute renal failure. Coenzyme Q10 (CoQ10), also known as ubiquinone, may have a role in preventing and/or treating myopathy related to the use of statins. Ubiquinone is a natural by-product of cholesterol biosynthesis. It is responsible for cellular energy transduction in mitochondria and also possesses antioxidant properties that reduce levels of free radicals and preserve the integrity of cell membranes. CoQ10 levels may be depleted by either HMG-CoA reductase inhibition or the reduction of LDL, one of its carrier proteins. Some authors have proposed that decreases in other cholesterol precursors, for example geranyl and farnesyl pyrophosphates, may be responsible for the myopathy associated with administration of statins. Various studies have been conducted to determine the efficacy of CoQ10 in the treatment of statin-induced myopathy. Although several trials have reported an increase in *serum* CoQ10 values, there is little evidence that supplementation enhances concentrations of the compound in *muscle*. Three relatively recent trials evaluated the efficacy of CoQ10 supplementation in statin-induced myopathy and the results were inconsistent. In two of the studies, serum levels of CoQ10 increased, but there was no evidence the patients experienced reduced muscle symptoms. One of these trials also showed no decrease in serum CK or transaminase values. In the third report, study patients experienced a 40% decrease in muscle pain compared to those receiving 400 IU/day of vitamin E. Although the dosage of CoQ10 for the treatment of myopathy has been highly variable (30-300 mg per day), a daily supplement of 100 – 200 mg appears reasonable. No serious adverse effects have been reported with CoQ10. In conclusion, most authors today do not recommend routine supplementation of CoQ10 for the treatment or prevention of myopathy associated with use of the statins.

References:

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The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282 (412.396.4600).