SHOULD STATIN USERS TAKE SUPPLEMENTAL COENZYME Q₁₀²

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Dyslipidemia (particularly elevated low-density lipoprotein (LDL)-cholesterol) is associated with an increased risk of coronary heart disease, myocardial infarction, peripheral vascular disease, and stroke. In men and women under age 50 years, cholesterol levels are directly related with 30-year overall and CVD mortality; overall death increases 5% and CVD death 9% for each 10 mg/dL (Anderson et al., 1987). In 2001, coronary heart disease accounted for nearly one third of all global deaths (American Heart Association, 2004). In the United States alone, over 62 million Americans have some form of CHD, and approximately 2600 people die each day from CHD-related complications. Therefore, normalization of elevated low-density lipoprotein (LDL)-cholesterol is undoubtedly the first line of attack in cardiovascular disease prevention.

Today there are five main drugs in use to lower cholesterol particularly LDL-cholesterol. These are:
- Statins
- Cholesterol Intestinal Absorption Inhibitors
- Fibric Acids
- Nicotinic Acids
- Bile Acid Sequestrors

In 2004, the world market for anticholesterol drugs exceeded $25 billion, making the anticholesterol drugs the most prescribed in the world. Statins (Lovastatin, Simvastatin, Pravastatin, and Atorvastatin) alone account for over 90% of this market, worth an estimated $22 billion (Euromonitor, 2004).

Statins are inhibitors of HMGCoA reductase, the rate-limiting enzyme in cholesterol synthesis (See Figure 1 in Langsjoen et al., 2005). Inhibition of HMGCoA reductase leads to a reduction in farnesyl pyrophosphate, which is a branch point for a number of other pathways including cholesterol and CoQ₁₀ (See Figure 1 in Langsjoen et al., 2005). Therefore, it has been suggested that statins may lower circulating CoQ₁₀. CoQ₁₀, present in the inner mitochondrial membrane, acts as the cofactor for at least three mitochondrial enzymes (complexes I, II and III) that play a vital role in oxidative phosphorylation leading to adenosine triphosphate (ATP) or cellular energy production (Levin, 1994). Thus it has been feared a reduction in CoQ₁₀ in statin users may have grave health consequences and, therefore, it has been widely recommended that users of statin should take supplemental CoQ₁₀.

The Coenzyme Q₁₀ market in the U.S. for the year 2003 was 207.6 million dollars. By the year 2008 it is projected to reach $295.2 million for a total 2003-2008 compound annual growth rate of 7.3%. (Euromonitor, 2004). The cost of a month’s supply of the ‘top’ Coenzyme Q₁₀ products from GNC, Natrol, Nature Made, NBTY, Rexall, Rite Aid, Twin Labs ranges between $10.99 and $30.39 with an average of $19.93.

Considering the potential of hundreds of millions of dollars to be spent by the consumer on CoQ₁₀, the Current Topics in Nutraceutical Research decided to evaluate science behind the recommendation of supplemental CoQ₁₀ for statin users.

To this end, we invited a lead opinion article on the subject (Langsjoen et al., 2005) and four scientists to comment on this article (Bleske, 2005; Lieberman, 2005). The authors of the lead opinion article are: Peter H. Langsjoen, Gian Paolo Littarru, and Marc A. Silver. Peter H. Langsjoen, M.D., F.A.C.C., is a cardiologist and biochemist with a clinical practice in Tyler, Texas. He comments frequently on cardiovascular issues and he has helped to pioneer research on Co-Enzyme Q₁₀. Gian Paolo Littarru, M.D. is Professor of Biochemistry, University of Ancona, Italy, and Chairman of the International CoQ₁₀ Association. Marc A. Silver, MD, FACP, FACC, FAHA, is Director of Heart Failure Institute, Advocate Christ Medical Center, Oak Lawn, IL and an active investigator in the area of heart failure. Two commentaries are from Barry E. Bleske, Pharm. D., University of Michigan, College of Pharmacy, Ann Arbor, MI, and Ronald Lieberman, MD, Division of Cancer Prevention, National Cancer Institute, Bethesda, Maryland 20014.

The authors of the lead article were also given a chance to express opinions on the commentaries, if they wish. In the present series, we have only two commentaries and the other two will be published at a later date. I, as the coordinating editor, have decided to present my summary statement at a later date when all the commentaries are in.

REFERENCES


