

Effects of Coenzyme Q10 in New Indications with Antioxidant Vitamin Deficiency

R. B. SINGH MD¹ AND M. M. SINGH²

¹Heart Research Laboratory, Medical Hospital and Research Centre, Moradabad, India and ²Department of Medicine, S.N. Medical College, Agra, India

Three cases diagnosed as acute glomerulonephritis with renal failure, amyotrophic lateral sclerosis and polymyositis exhibited antioxidant vitamin deficiency and free radical stress. Treatment with coenzyme Q10 was associated with significant improvement for the first time in the published literature.

Keywords: glomerulonephritis, renal failure, polymyositis, motor neurone disease, ubiquinone, antioxidant, vitamin.

INTRODUCTION

Coenzyme Q10 (CoQ) deficiency has been described in apparently healthy subjects as well as in patients with cardiovascular disease, diabetes, cancer and muscular diseases [1–3]. CoQ is normally present in all body cells. It is particularly prevalent in the heart, kidneys, liver, muscles, pancreas, thyroid and brain, and varies between 13.4 $\mu\text{g g}^{-1}$ tissue in the brain to 114 $\mu\text{g g}^{-1}$ tissue in the heart [4]. CoQ is a powerful antioxidant and bioenergetic agent and enhances the availability of adenosinetriphosphatase (ATP) in the cells [1–3]. Treatment with CoQ has been beneficial in congestive heart failure, cardiomyopathy, coronary artery disease, diabetes, cancer, muscular dystrophies, myopathies and degenerative diseases [5, 6]. Since CoQ is essential to the optimal function of all cell types, it is not surprising to find a seemingly diverse number of disease states which respond to CoQ supplementation [6–10].

In fact, all metabolically active tissues are highly sensitive to a deficiency of CoQ. Until recently, most of the research was directed at the requirements of CoQ in energy conversion in the mitochondrial compartments of cells or on the antioxidant properties of CoQ. New evidence [6] shows that CoQ is present in other cell membranes. In the outer membrane, it may contribute to the control of cell growth, especially in lymphocytes, indicating its universality in the disease process. It is reasonable to believe that the entire field of medicine should be re-evaluated in light of this growing knowledge and treatment with CoQ should be tried in all so-called polygenic diseases.