



UPFRONT

THE ROLE OF
CO-ENZYME Q10
SUPPLEMENTS IN MEDICAL TREATMENT

It is becoming increasingly common for natural health products to be promoted as supplements to common medicines such as antibiotics and statins. They are readily available in supermarkets and health stores and now some pharmacy chains are actively promoting these products for sale with prescriptions.

On a recent visit to a pharmacy, a GP was surprised to be encouraged by a pharmacist to purchase a natural health supplement, co-enzyme Q10 (CoQ10), to accompany his prescription for cardiac medication. He was handed an information sheet with both pharmacy chain and natural health product company branding. It claimed that supplementation with CoQ10 was recommended, especially with statins, beta-blockers and tricyclic antidepressants to 'avert the negative effects of a CoQ10 deficiency'. It was claimed that statins and beta-blockers inhibit CoQ10 and 'the status of CoQ10 together with tricyclic antidepressants may be compromised'. As a prescriber and user of these drugs the GP was somewhat surprised at these claims, and asked us what the evidence was.

www.bpac.org.nz keyword: "CoQ10"

Co-enzyme Q10 was discovered in the 1950s and its mechanisms and uses are still being investigated

CoQ10 (also known as ubiquinone) assists in the production of energy within cells and helps protect internal and external cell membranes against oxidation. Organs with the greatest energy requirements such as the heart, lungs and liver have higher concentrations of CoQ10. Approximately half of the body's CoQ10 is obtained through dietary fat ingestion, with the remainder from cellular synthesis.

Supplementation of CoQ10 is used as a treatment for serious mitochondrial disorders and other metabolic syndromes, when people are unable to produce enough CoQ10. Current research focuses on its role in the treatment of neurodegenerative and cardiovascular disease. CoQ10 is a common ingredient in skin-care products and CoQ10 supplements are marketed by the cosmetics industry as 'skin boosters'.

Routine use of co-enzyme Q10 with statins is not necessary

The rationale for using CoQ10 in association with statin medication seems to focus on the role it may play in alleviating symptoms of myopathy – a relatively rare side effect of statin use. Statin treatment reduces circulating levels of CoQ10.^{1,2} However, studies on human subjects have shown that intramuscular levels of CoQ10 are not reduced by low-dose statin treatment. Effects may differ with the type of statin and dose.² Data on a causal association between low levels of intramuscular CoQ10 and statin induced myopathy is limited and contradictory.²

In a recently published systematic review in the Journal of the American College of Cardiology, Dr Leo Marcoff and Dr Paul Thompson concluded that there is insufficient evidence at present to prove the role of CoQ10 deficiency in statin induced myopathy. They state that routine supplementation of CoQ10 with statin use is neither justified nor recommended. However they noted that as there are no known risks associated with CoQ10, it may be trialled for people who develop statin associated myalgia.² Other reviews of research and literature have come to similar conclusions.^{3,4}

No compelling evidence as yet for using co-enzyme Q10 in cardiovascular disease

In the pharmacy-supplied CoQ10 information sheet, beta-blockers were highlighted as medications that would benefit from concurrent administration of CoQ10 supplements.

There has been some research on using CoQ10 as a treatment for hypertension. A recent meta-analysis of clinical trials concluded that CoQ10 'has the potential' to lower blood pressure in hypertensive patients.⁵ In contrast, a study conducted among healthy individuals found that CoQ10 had only a mild and transient effect on systolic blood pressure.⁶ While there is some emerging evidence of a beneficial effect of CoQ10 in hypertensive patients, there is less evidence for its use in cardiovascular disease as a whole. Large-scale trials are needed to find any compelling evidence of clinical effect.

No evidence for supplementing tricyclics with CoQ10

Although the pharmacy information sheet highlighted tricyclic antidepressants as benefiting from supplementation of CoQ10, we could not find any research to support this.

No clinical evidence of neuroprotection role for CoQ10 in Parkinson's disease

The mechanisms of Parkinson's disease are not yet fully known, but there is emerging evidence that cellular energy depletion and oxidative stress are contributing factors. CoQ10 is known to be a potent antioxidant and energy stimulant, therefore its potential role as a neuroprotectant is being investigated.

A recently published trial testing whether CoQ10 has beneficial effects on the symptoms in mid-stage Parkinson's disease, found that, while it was safe and well-tolerated, there was no difference between patients receiving CoQ10 and those who did not receive the supplement.⁷ Other researchers have found no evidence of a clinically significant effect of CoQ10 in alleviating symptoms or halting the progression of Parkinson's disease, but suggest that further study is warranted.^{8,9} One researcher notes that caution must be applied to the use of CoQ10 without certainty of its efficacy, especially since it is readily available over-the-counter and may expose patients to unnecessary risk and significant expense.¹⁰

So what does all this mean?

Current evidence on the use of CoQ10 supplements, alongside medications such as statins, beta-blockers and tricyclic antidepressants and as a treatment for hypertension or neurological disorders, shows that while there is no evidence of harm in taking this supplement clinical benefit is not proven.

There are good dietary sources of CoQ10 including oily fish, offal (e.g. liver, kidney), nuts, soy, sesame and some vegetables. In addition, there are other non-pharmacological strategies for managing conditions such as hypertension e.g. increased exercise, weight loss, decreased alcohol consumption and dietary modifications.¹¹ The use of supplements introduces a relatively substantial cost, with the recommended dose of 30–90 mg costing on average 60c – \$1.80 a day.

While there is no safety issue preventing the promotion of the blanket use of CoQ10, we question whether it is ethical to use a prescription as the basis for promoting a supplement, that has little evidence of clinical benefit.

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