

The Use of Coenzyme Q10 in Hypertension: An Educational Article and Expert Opinion



Aamir Al Mosawi*

Advisor doctor and expert trainer, The National Center of Training and Development Iraqi Ministry of Health, Baghdad, Iraq

Submission: May 9, 2023; **Published:** May 16, 2023

***Corresponding author:** Advisor doctor and expert trainer, The National Center of Training and Development Iraqi Ministry of Health, Baghdad, Iraq

Abstract

Dietary health supplements have been increasingly used in the prevention and treatment of chronic disorders. Coenzyme Q10 is a dietary health supplement that has been reported to have an anti-oxidant property as early as the 1966. The aim of this paper is to review coenzyme Q10 research findings relevant to its use in hypertension.

Expert opinio

The current evidence-base expert opinion suggests the coenzyme Q10 can used as anti-hypotensive agent in early hypertensive disease and in mild hypertension without significant irreversible vascular changes and also in isolated systolic hypertension.

Keywords: Co-enzyme Q10; New hypertension treatment; Expert opinion

Opinion

Dietary health supplements have been increasingly used in the prevention and treatment of chronic disorders [1-5]. Coenzyme Q10 is a dietary health supplement that has been reported to have an anti-oxidant property as early as 1966 [6]. The aim of this paper is to review coenzyme Q10 research findings relevant to its use in hypertension. In 1976, Yamagami and colleagues reported the treatment of five patients with primary hypertension associated with 20-40% deficiency of succinate dehydrogenase-co-enzyme Q10 reductase in leucocytes. A 74-year-old man experienced lowering of the systolic blood pressure (p less than 0.001), the diastolic blood pressure was reduced (p less than 0.05) in association with correction of coenzyme Q10 inadequate activity. Four patients who were treated with coenzyme Q10 for 3-5 months also experienced significant lowering (p less than 0.05 to p less than 0.001) of diastolic pressure. Yamagami and colleagues attributed the hypotensive effect of coenzyme Q10 to an increased coenzyme activity which results in improvement in bioenergetics by correcting the deficiency of coenzyme Q10 [7]. In 1994, Littarru et al from Italy treated 26 patients with primary arterial hypertension with oral coenzyme Q10, 100 mg daily in two divided doses for 10 weeks. Treatment was associated with lowering of the systolic blood pressure from 164.5 +/- 3.1 to 146.7 +/- 4.1 mmHg and lowering of diastolic blood pressure from 98.1 +/- 1.7 to 86.1 +/- 1.3 mmHg (P < 0.001). Treatment was associated

with elevation of plasma coenzyme Q10 level and reduction of serum cholesterol (P < 0.005) with an increase in serum HDL (P < 0.01). In five patients, it was possible to demonstrate a decrease in peripheral resistances which was associated with radionuclide angiocardiology (P < 0.02). Treatment was not associated in a change in plasma rennin activity, serum and urinary sodium and potassium, and urinary aldosterone [8]. Also in 1994, Langsjoen et al from the United States reported the addition of oral coenzyme Q10 (Mean dose: 225 mg daily) to the antihypertensive drug treatment of 108 patients with primary symptomatic hypertension. Coenzyme Q10 dose was not was modified according to the response to treatment and blood levels of coenzyme Q10.

The addition of coenzyme Q10 allowed in most patient's gradual reduction of antihypertensive medications within the first 1 to 6 months. In 9.4% of the patients, it was possible to observe a marked improvement in left ventricular wall thickness and diastolic function on echocardiograms [9]. In 1999, Singh et al from India reported a study which showed the addition of coenzyme Q10 (120 mg daily in two divided doses) to the antihypertensive medications for two months was associated with lowering of blood pressure which was attributed to reducing oxidative stress and insulin response [10].

In 2001, Burke and colleagues reported a placebo-controlled study which included 83 patients with only systolic hypertension (46 males and 37 females). The study showed that treatment of coenzyme Q10 120 mg daily in two divided doses for three months was associated lowering of the systolic blood pressure without the occurrence of orthostatic hypotension. Burke and colleagues suggested that coenzyme Q10 is a safe alternative to antihypertensive drugs in patients with systolic hypertension [11]. In 2007, Rosenfeldt et al from Australia reported a meta-analytic study which included 12 clinical studies (362 patients) including 3 randomized controlled studies, 1 crossover study and 8 open label studies. The meta-analysis suggested that coenzyme Q10 can lower systolic pressure by up to 17 mm Hg and can also diastolic pressure by up to 10 mm Hg without important side effects [12].

Expert opinion

The current evidence-base expert opinion suggests the coenzyme Q10 can used as anti-hypotensive agent in early hypertensive disease and in mild hypertension without significant irreversible vascular changes and also in isolated systolic hypertension.

Conflict of interest

None.

References

1. Al Mosawi AJ (2012) L-arginine research progress 1st Edt. Saarbrücken. LAP Lambert Academic Publishing, London, UK
2. Al Mosawi AJ (2021) The uses of L-Carnitine in cardiology. International Journal of Biomed Research 1(1): 1-5.
3. Al Mosawi AJ (2022) The use of L-Carnitine in Male Reproductive Abnormalities: The Available Evidence. International Journal of Clinical and Medical Education Research 1(5): 150-152.
4. Al Mosawi AJ (2022) The use of cinnamon supplementation in diabetes: Research evidence and expert opinion. Journal of Clinical Trails and Bioavailability Research 1(1): 1-4.
5. Al Mosawi AJ (2022) The use of alpha-lipoic acid supplementation in diabetes: The available Evidence. Journal of Clinical Trails and Bioavailability Research 1(1): 1-6.
6. Mellors A, Tappel AL (1966) Quinones and quinols as inhibitors of lipid peroxidation. Lipids. 1(4): 282-284.
7. Yamagami T, Shibata N, Folkers K (1976) Bioenergetics in clinical medicine. VIII. Administration of coenzyme Q10 to patients with essential hypertension. Res Commun Chem Pathol Pharmacol 14(4): 721-727.
8. Digiesi V, Cantini F, Oradei A, Bisi G and Guarino GC et al. (1994) Coenzyme Q10 in essential hypertension. Mol Aspects Med 15 Suppl: s257-263.
9. Langsjoen P, Willis R, Folkers K (1994) Treatment of essential hypertension with coenzyme Q10. Mol Aspects Med 15 Suppl: (94) 90037-x.
10. Singh RB, Niaz MA, Rastogi SS, Shukla PK and Thakur AS (1999) Effect of hydrosoluble coenzyme Q10 on blood pressures and insulin resistance in hypertensive patients with coronary artery disease. J Hum Hypertens 13(3): 203-208.
11. Burke BE, Neuenschwander R, Olson RD (2001) Randomized, double-blind, placebo-controlled trial of coenzyme Q10 in isolated systolic hypertension. South Med J 94(11): 1112-1117.
12. Rosenfeldt FL, Haas SJ, Krum H, Hadj A, Ng K, et al. (2007) Coenzyme Q10 in the treatment of hypertension: a meta-analysis of the clinical trials. J Hum Hypertens 21(4): 297-306.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/JOJPH.2022.07.555715](https://doi.org/10.19080/JOJPH.2022.07.555715)

Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission
<https://juniperpublishers.com/online-submission.php>