

# The use of vitamins and coenzyme Q10 for the treatment of vascular occlusion diseases affecting the retina

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Nutritional supplementation with antioxidants and vitamins is widely recommended in the treatment of vascular disorders affecting the retina, although there is insufficient evidence on its effectiveness. The vitamin-like compound coenzyme Q10 (CoQ10) is a nutritional supplement of current interest to treat neurodegenerative diseases. Here, we report a retrospective clinical case series study of 48 patients diagnosed with retinal vascular diseases, including non-arteritic ischemic optic neuropathy (NAION), retinal artery occlusion (RAO), and homonymous hemianopia or quadrantanopia following stroke, treated with oral supplementation with CoQ10 (100 mg per day) and vitamins. Patient follow-up was performed using the Humphrey field analyzer and 30-2 testing algorithm to determine the visual field index (VFI) and progression rates. All treated patients showed positive VFI progression rates per year:  $+11.5 \pm 15\%$  for NAION patients ( $n = 18$ ),  $+22 \pm 17\%$  for RAO patients ( $n = 7$ ),  $+9.3 \pm 10.5\%$  for hemianopia/quadrantanopia patients ( $n = 10$ ), and  $+11 \pm 21\%$  for patients with other conditions ( $n = 13$ ). The interruption of CoQ10 supplementation in one patient resulted in a pronounced decrease of the VFI, which was partially recovered when treatment was restored. This study supports the role of CoQ10 as a nutritional therapeutic agent for vascular diseases affecting the retina. Owing to decreased VFI after interruption of CoQ10, its beneficial effects may be reversible. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Coenzyme Q10

Dietary supplementation

Retina

Vascular diseases

Visual field defects

Vitamins

ascorbic acid

cyanocobalamin

magnesium

nutrition supplement

pyridoxine

selenium

thiamine

ubidecarenone

vitamin

xanthophyll

zeaxanthin

zinc

adult

Article

clinical article

controlled study

diet supplementation

female

follow up

hemianopia

homonymous hemianopia

human

male

middle aged

optic nerve

optic nerve atrophy

optical coherence tomography

retina

retina artery

retina blood vessel occlusion

vascular disease

vision

visual evoked potential

visual field

vitamin supplementation