

# Abstract

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## Plasma Antioxidants and Asymptomatic Carotid Atherosclerotic Disease.

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**BACKGROUND:** Atherosclerosis remains clinically mute for a long time and frequently manifests itself with an acute cardiovascular event. The possibility of detecting this disease in a subclinical phase and reducing or reversing its progression is an issue of relevance. Published studies on the association between antioxidant vitamins and carotenoids and carotid intima-media thickness (CIMT) have been inconclusive.

**METHODS:** We enrolled 220 consecutive, asymptomatic participants. After carotid ultrasound investigation, a medical history was taken, a physical examination was performed and venous blood samples were collected. Venous blood samples were analyzed for concentrations of antioxidant vitamins and carotenoids.

**RESULTS:** Low concentrations of vitamin A ( $p < 0.01$ ), vitamin E ( $p < 0.001$ ), lycopene ( $p < 0.01$ ) and beta-carotene ( $p < 0.001$ ) were significantly associated with carotid atherosclerosis (CIMT  $\geq 0.8$  mm). In addition, marginally higher body mass index, plasma haemoglobin and high-density lipoprotein cholesterol were also associated with carotid atherosclerosis, while other laboratory parameters considered in this study (total cholesterol, low-density lipoprotein cholesterol, triglycerides and C-reactive protein) were not significantly associated with carotid atherosclerosis.

**CONCLUSIONS:** Low plasma concentrations of antioxidant vitamins (A, E, beta-carotene) and lycopene were associated with early carotid atherosclerotic lesions as measured by CIMT. Regular intake of foods rich in lycopene and antioxidant vitamins may slow the progression of atherosclerosis.

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