

Plasma Carotenoid Levels and Cognitive Performance in an Elderly Population: Results of the EVA Study

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Background. The hypothesis of carotenoids having a preventive role in cognitive impairment is suggested by their antioxidant properties.

Methods. We examined, in a cross-sectional analysis, the relationship between cognitive performance (assessed by the Mini-Mental State Examination, Trail Making Test Part B, Digit Symbol Substitution, Finger Tapping Test, and Word Fluency Test) and different plasma carotenoids (lutein, zeaxanthin, b-cryptoxanthin, lycopene, a-carotene, and trans-bcarotene and cis-b-carotene) in a healthy elderly population (the EVA, "Etude du Vieillissement Arte'riel," study; n=4589, age 73.5 6 3 years).

Results. Logistic regression showed that participants with the lowest cognitive functioning (25th percentile) had a higher probability of having low levels of specific plasma carotenoids (1st quartile): lycopene and zeaxanthin. For zeaxanthin, odds ratios (ORs) were as follows: OR_{DSS} 1.97 (95% confidence interval [CI] 1.21–3.20), OR_{FTT} 1.70 (CI 1.05–2.74), and OR_{WFT} 1.82 (CI 1.08–3.07); for lycopene, OR_{DSS} 1.93 (CI 1.20–3.12) and OR_{TMTB} 1.64 (CI 1.04–2.59).

Conclusion. Even if it is not possible to affirm if these low levels of carotenoids precede or are the consequence of cognitive impairment, our results suggest that low carotenoid levels could play a role in cognitive impairment. The biological significance of our findings needs further research.

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