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Poor plasma status of carotene and vitamin C is associated with higher mortality from ischemic heart disease and stroke: Basel Prospective Study.

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Previous cross-cultural comparisons of the mortality from ischemic heart disease in European communities with associated plasma levels of essential antioxidants have revealed strong inverse correlations for vitamin E and relatively weak correlations for other antioxidants. Similarly, in a case-control study in Edinburgh low plasma levels of vitamin E were significantly associated with an increased risk of previously undiagnosed angina pectoris whereas low levels of other essential antioxidants lacked statistical significance. The current Basel Prospective Study is particularly well suited to elucidate the impact of antioxidants other than vitamin E. In this population (which was recently evaluated regarding cancer mortality) the plasma levels of vitamins E and A are exceptionally high and above the presumed threshold level of risk for ischemic heart disease. The present 12-year follow-up of cardiovascular mortality in this study reveals a significantly increased relative risk of ischemic heart disease and stroke at initially low plasma levels of carotene ($< 0.23 \mu\text{mol/l}$) and/or vitamin C ($< 22.7 \mu\text{mol/l}$), independently of vitamin E and of the classical cardiovascular risk factors. Low levels of both carotene and vitamin C increase the risk further, in the case of stroke even with significance for overmultiplicative interaction. In conclusion, in cardiovascular disease independent inverse correlations may exist for every major essential antioxidant although the latter can also interact synergistically. Therefore future intervention trials of antioxidants in the prevention of ischemic heart disease should primarily test the simultaneous optimization of the status of all principal essential antioxidants.

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Esiste una correlazione inversa indipendente tra malattie cardiovascolari e ciascuno dei principali antiossidanti essenziali, nonostante che questi ultimi possano anche interagire in modo sinergico.

Quindi futuri studi clinici finalizzati a testare le sostanze antiossidanti nella prevenzione dell'ischemia cerebrale dovrebbero misurare la simultanea ottimizzazione dei livelli di tutti i principali antiossidanti essenziali.