Letters to the Editor

Diet and Melanoma in a Case-control Study

To the Editor: The excellent article by Millen et al. (1) has identified several dietary compounds associated with a lower risk of melanoma and alcohol as a factor associated with an increased risk. No biological explanation for these findings was offered. We have recently published a perspective based on extensive experimental data, which offers a coherent hypothesis on the etiology and pathogenesis of melanoma. Our hypothesis provides a unifying approach for the missing attributable risk, which essentially states that the pathogenesis of melanoma is driven by a progressively more and more altered redox state that develops at all stages of malignant melanoma tumorigenesis, including before and during transformation of melanocytes (2). The carotenoids identified in the study by Millen et al. would be considered by many as probably functioning as antioxidants to provide a protective effect. In contradistinction, alcohol, among its many actions, enhances a pro-oxidant state (3). The observations found in this case-control diet study are consistent with our experimental data and the resulting hypothesis. Because the bulk of considerable data is in older literature (4), and the hypothesis also proposes that metal-induced oxidation of melanin is important, it would be interesting to also know the occupational history of these individuals. Of course, the association of dietary carotenoids may be misleading as the addition of supplements to the analysis did not seem to further decrease the risk. The lack of dose-response relationship perhaps suggests either that the carotenoids are tracking some other dietary or other factor that is not being assessed in the analysis or that there is a threshold for the effect of the carotenoids. In addition, it is possible that enzymes responsible for the metabolism of alcohol as well as carotenoids are controlled genetically where the effect would be a product of gene-environment interaction. These concerns are of particular relevance because the strong association of β-carotene with lung cancer risk (5) did not translate to clinical benefit when individuals at risk for lung cancer were given supplements with β-carotene (6, 7).

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