Re: Nonmelanoma Skin Cancer and Risk for Subsequent Malignancy

The recent article by Chen et al. (1) on risk for subsequent cancer after nonmelanoma skin cancer (NMSC) is interesting. However, the authors overlooked a number of similar studies (2-5) that found diagnosis of NMSC was associated with reduced risk of cancer. The NMSC mortality rate was used as the index of integrated lifetime exposure to ultraviolet B radiation in 48 continental provinces of Spain (2). In this analysis, a total of 17 cancers were found to have a statistically significant inverse association with NMSC in a linear regression analysis. Subsequently, multiple linear regression analysis was done with NMSC, latitude, and lung cancer mortality rate, which is a measure of the health effects of smoking. In that analysis, 12 cancers including melanoma had statistically significant inverse associations with NMSC for at least one sex; only bladder and corpus uteri cancer did not have a statistically significant inverse correlation with either NMSC or latitude. In a meta-analysis (3), the risk of cervical, colon, esophageal, gastric, and rectal cancers was reduced after adjustment for smoking; the lung cancer incidence rate in each population was used as the index of smoking effects.

In a multicountry study by Tuohimaa et al. (4), countries were divided into sunny (Australia, Singapore, and Spain) and less sunny (Canada, Denmark, Finland, Iceland, Norway, Scotland, Slovenia, and Sweden), with the dividing line near the latitude of 45°. In the sunny countries, there were 188 patients with squamous cell carcinoma, 368 with basal cell carcinoma, and 2423 with melanoma; data were obtained from the cancer registries over a period of at least 25 years. Among those living in sunny countries who developed NMSC compared with those who did not develop NMSC, a statistically significantly reduced rate was observed for all secondary cancers, except lip and skin cancers, for both basal cell carcinoma (standard incidence ratio [SIR] = 0.86, 95% confidence interval [CI] = 0.80 to 0.92) and squamous cell carcinoma (SIR = 0.79, 95% CI = 0.68 to 0.91) but not for melanoma (SIR = 1.03, 95% CI = 0.99 to 1.08). For melanoma, ultraviolet B exposure is not an important risk factor (6). Among those living in the less sunny countries who developed NMSC, compared with those who did not develop NMSC, the risk for all cancers, other than lip and skin, was increased (for squamous cell carcinoma, [SIR] = 1.36, 95% CI = 1.33 to 1.38; for basal cell carcinoma, SIR = 1.35, 95% CI = 1.32 to 1.37; and for melanoma, SIR = 1.14, 95% CI = 1.11 to 1.17). The study of Chen et al. (1) was conducted at a latitude that was approximately 40° N, and their results are consistent with those of Tuohimaa et al. (4) for the less sunny countries. As discussed by Grant and Garland (7), the northeast part of the United States is the region with the lowest levels of summertime solar ultraviolet B radiation. Thus, the results in Chen et al. (1) should be considered representative of living in a region with solar ultraviolet B radiation levels that do not provide sufficient vitamin D to statistically significantly reduce the risk of cancer incidence. Development of basal cell carcinoma or squamous cell carcinoma by people living in such regions could be related to outdoor occupation or recreation but with so little skin area exposed that little vitamin D is produced by exposure to sunlight. In the southwestern part of the United States, melanoma and NMSC rates are higher than those in Maryland, but the mortality rates for many internal cancers are much lower, often by half (7).

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References
3. Grant WB. A meta-analysis of second cancers after a diagnosis of nonmelanoma skin cancer: additional evidence that solar ultraviolet-B irradiance reduces the risk of internal cancers.