Does Skin Cancer Discriminate? What Role Does Skin Pigment Play in the Development of Melanoma Skin Cancer?

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Knowing that the dominant amount of eumelanin present in dark complexioned people allows protection from the sun's damaging ultraviolet (UV) rays, we hypothesized that people who have this increased protection are more likely than others to be diagnosed at late stages of melanoma, which offers the worst prognosis.

Skin cancer is the most common type of cancer in the United States. Of the three basic types of skin cancer, melanoma is responsible for most of the deaths caused by skin cancer. Its ability to metastasize is what distinguishes melanoma from the other skin cancers. Related to excessive UV radiation exposure, the rate of skin cancer is increasing at a faster rate than any other cancer. Educational programs about melanoma are targeted mainly to Whites. However, little is known about skin cancer awareness in Hispanics, African Americans and other minorities. This has led to insufficient screening of most minorities and sometimes to late detection and misdiagnosis.

Introduction

Eumelanin, which is the dominant form of melanin in people of darker complexion, is a much stronger photo protective agent compared to phaeomelanin found in fair-skinned people. Although everyone has approximately the same amount of melanocytes, dark-complexioned people produce melanin even in the dark, while fair-complexioned people produce melanin only after being exposed to sunlight. Fair-skinned people tend to develop melanoma on head, neck, trunk, arms, legs, scalp, and back; while darker people tend to develop melanoma on palms, fingers, soles, toes, subungual areas, genitals and lips. Due to a lack of education, people of darker complexions are more likely to be diagnosed in a late stage of melanoma when the prognosis is very poor.

Methods

Research was conducted by reviewing the literature on melanoma, both electronic (Internet) and printed materials.

Results

In one project funded by the American Cancer Society, Florida Division, melanoma data from the Florida Cancer Data System were analyzed for Miami-Dade County residents from 1997 to 2001. There were a total of 1176 melanoma cases: 25 Blacks (2%) and 1151 Whites (98%). Table 1 summarizes our findings. Comparing early stage disease with regional (direct extension and/or lymph node involvement) and distant disease (metastasis at presentation), significant differences in stage at diagnosis were found by race. Fifty-two percent of the Black patients were diagnosed with early disease, compared with 78% of the White patients: 48% of Black patients had regional or distant disease at presentation compared to 22% of White patients.

Conclusion

Melanoma remains a difficult and challenging foe for many researchers and no cancer, including melanoma, can ever be prevented with absolute certainty. However, risk factors for melanoma are well known and those who are not aware of the dangers of melanoma are at greatest risk.

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Table 1. Summary of the Miami-Dade County melanoma study results (1997–2001)

	Count (% within population group)	
Stage at presentation	**Black**	**White**
Early	11 (52.4%)	794 (78.2%)
Regional	5 (23.8%)	94 (9.3%)
Distant	5 (23.8%)	127 (12.5%)
Total	21	1015

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