Comparison of Stage at Diagnosis of Melanoma Among Hispanic, Black, and White Patients in Miami-Dade County, Florida

Shasa Hu, MD; Rita M. Soza-Vento, PhD; Dorothy F. Parker, MHS; Robert S. Kirsner, MD, PhD

Objective: To compare stage at diagnosis of melanoma between non-Hispanic white, non-Hispanic black, and Hispanic patients.

Design: Retrospective analysis.

Setting: Melanoma cases reported to the Florida Cancer Data System, with known stage and race/ethnicity information, for residents of Miami-Dade County, Florida, from 1997 to 2002.

Patients: Those diagnosed as having melanoma according to the Florida Cancer Data System.

Main Outcome Measure: Stage of melanoma at diagnosis.

Results: Of the 1690 melanoma cases reported with both stage and race/ethnicity information, 1176 (70%) were among non-Hispanic white patients, 485 (29%) were among Hispanic patients of any race, and 29 (2%) were among non-Hispanic black patients. Late-stage (regional and distant) diagnosis was more common among Hispanic (26%) and non-Hispanic black patients (52%) compared with non-Hispanic white patients (16%) ($P<.001$).

Conclusion: Advanced stage of melanoma diagnosis among Hispanic and black patients suggests suboptimal secondary prevention efforts in minority populations.

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The fast-growing Hispanic population in the United States warrants closer examination of melanoma epidemiologic features in this population. Hispanic and black individuals are the 2 largest racial/ethnic groups in the United States after non-Hispanic white persons (NHWs), comprising 12.5% and 12.3% of total US populations, respectively.14 Miami-Dade County, Florida, offers a unique advantage of studying melanoma in Hispanic individuals because it has the second largest Hispanic population in the United States. In 2003, 1.4 million Hispanic persons comprised 61% of the total Miami-Dade County population.15 Miami-Dade County has higher than national averages of both Hispanic and non-Hispanic black persons (NHBs) (Table 1).15 With Miami-Dade County’s large Hispanic and black populations and available melanoma data, we aimed to gain a more current understanding of melanoma epidemiologic features in black and Hispanic individuals by comparing the distribution of melanoma stage at presentation among different racial/ethnic groups.

**METHODS**

We previously reported a higher percentage of late-stage diagnosis of melanoma among black persons residing in Miami-Dade County, Florida.3 From 1997 to 2001, almost half (48%) of Miami-Dade County’s black patients with melanoma presented with regional- or distant-stage melanoma compared with 22% of white patients (N=1036; χ²=8.4; P=.02). We hypothesized that delayed presentation of melanoma also exists in the Hispanic population compared with white persons in Miami-Dade County. In this study, we analyze melanoma data from the same database, the Florida Cancer Data System (FCDS), with modified race/ethnicity categories to compare melanoma stage at diagnosis for white, black, and Hispanic patients and with an additional year of data (1997-2002).

**CANCER DATA SOURCE**

The FCDS, Florida’s statewide, population-based cancer registry, has been collecting incidence data since 1981. All hospitals, freestanding ambulatory surgical centers, radiation therapy facilities, pathology laboratories, and dermatopathologists’ offices and licensed health care professionals in the state of Florida are required by state law to report cancer diagnoses and relevant clinical information. Cancers are coded on the basis of the International Classification of Diseases for Oncology.16 Cancer reporting follows the standards specified by the Surveillance, Epidemiology, and End Results (SEER) program, including rules for coding multiple primary tumors.17 The FCDS microscopically confirmed 98% of melanoma cases. Stage at diagnosis is coded according to the summary staging system used by the SEER program; for example, in situ, local, regional (melanoma with direct extension and/or nodal involvement or regional, not otherwise specified), and distant (with metastasis) are the 4 main stages. In our analysis, regional and distant were considered advanced stages.

**RACE/ETHNICITY DEFINITION AND STUDY POPULATION**

The terms Hispanic and Latino are used interchangeably by the US Census Bureau to identify people who indicate that they originate from a Spanish-speaking country.18 Hispanic/Latino is considered an ethnicity in both US census and FCDS data. A person of Hispanic origin may be of any race or heritage. In the United States, most Hispanic people (65%) are of Mexican ancestry and 23% are of other Hispanic/Latino ancestry, followed by Puerto Rican (9%) and Cuban (3%).14 In Miami-Dade County, most Hispanic/Latino people (31%) are of Cuban ancestry, with only 4% of Mexican ancestry, 7% of Puerto Rican ancestry, and 38% of other Hispanic/Latino ancestry.13 To describe melanoma cases in Miami-Dade County in meaningful subgroups, 3 mutually exclusive race/ethnicity categories are used in this study: NHW, NHB, and Hispanic (of any race).

The FCDS reports data on Hispanic origin as recorded by the hospital tumor registry (eg, based on country of birth and ethnicity reported in the patient’s medical record or death certificate). For cases and deaths reported without Hispanic origin information, Hispanic ethnicity is imputed based on surname or maiden name. Quality control in classification of ethnicity by the FCDS is considered extremely good because of the large Hispanic presence in South Florida and periodically conducted registry quality control procedures.

**STATISTICAL ANALYSIS**

The software program SPSS, version 12.0 (SPSS Inc, Chicago, Ill), was used to analyze the data. Pearson χ² tests were performed to detect differences in the stage distribution of melanoma among NHW, NHB, and Hispanic populations.

**RESULTS**

**MELANOMA STAGE AT DIAGNOSIS**

A total of 1893 melanoma cases with stage information were reported in Miami-Dade County between 1997 and 2002. After excluding 203 cases with unknown race or ethnicity, 1690 cases were left: 1176 cases (70%) in...
NHWs, 485 cases (29%) in Hispanic persons, and 29 cases (2%) in NHBs. Most Hispanic patients (99.7%) were of white race; only 3 were black. Significant differences in stage at diagnosis were found between NHW, NHB, and Hispanic groups (Table 2). The NHWs had the highest percentage of melanoma diagnosis at the in situ stage: 27% compared with 10% in NHBs and 22% in Hispanic patients. The NHWs were also the group most likely to present with local-stage melanoma: 57% compared with 38% for NHBs and 52% for Hispanic patients. In contrast, NHBs had the highest percentage of late-stage diagnosis: 52% were diagnosed as having either regional- or distant-stage melanoma. The percentage of Hispanic patients with regional- or distant-stage melanoma was also higher than that for NHWs: 26% compared with 16% (N = 1690; χ² = 42.5; P < .001).

**STUDY LIMITATIONS**

Several limitations should be considered in interpreting these data. The accuracy of ethnicity data, especially those for cancer rates in women, is limited by the method of ascertaining Hispanic ethnicity. The FCDS uses both surname and maiden name to impute Hispanic ethnicity when self-reported race/ethnicity is lacking. However, when maiden names are not available, misclassification of true ethnic background may occur for women who acquire Spanish or non-Spanish surnames through marriage. Melanoma rates by race/ethnicity also do not permit conclusions to be drawn with respect to constitutive skin pigmentation or Fitzpatrick skin type; heterogeneity in skin pigmentation exists among Hispanic and black individuals, and there is no established correlation between skin color or Fitzpatrick skin type by ethnicity. Finally, data on tumor (Breslow) depth are not yet available from the FCDS and therefore are not available for analysis.

**COMMENT**

From 1997 to 2002, both Hispanic persons and NHBs residing in Miami-Dade County had a more advanced stage of melanoma at presentation compared with NHWs. Overall, 16% of Hispanic persons and 31% of NHBs already had melanoma that had metastasized at diagnosis, compared with only 9% of NHWs (P < .001). The racial disparity in stage at diagnosis of malignant melanoma noted in this study is comparable to that in previous reports. Byrd et al recently reported a higher percentage of late-stage diagnoses (regional and distant) among black persons (32%) compared with white persons (13%) in Washington, DC (N = 469). This is similar to national data reported by the SEER program, in which 32% of melanoma cases in black patients were diagnosed at late stage compared with 14% of melanoma cases in white patients (1995-2001). We reported differences in late-stage diagnosis between black and white patients in Miami-Dade County: 48% and 22%, respectively. The overall more advanced melanoma in Miami-Dade County calls for better secondary prevention in the region.

One study examined stage at diagnosis of melanoma among Hispanic patients at Jackson Memorial Hospital, a large public hospital in Miami-Dade County, from 1977 to 1986. Of the 376 melanoma cases reviewed, 54 patients were classified as Hispanic. Sixty-seven percent of melanoma cases in Hispanic patients were diagnosed at the local stage and 26% at the regional or distant stage. These percentages are comparable to those reported in this study using the FCDS data for Miami-Dade County. However, unlike our study, no significant differences in stage at diagnosis were found between Hispanic and non-Hispanic patients, which may reflect either the sample size studied or inadequate division of population subgroups, because non-Hispanics encompassed both white and black patients in that study. Our findings, with a larger sample size and more comprehensive reporting in the FCDS, are likely a more accurate and certainly more current representation of melanoma epidemiologic features within the county.

The difference that we found in melanoma stage between Hispanic patients and NHWs is similar to that in 2 other reports that described delayed diagnosis of melanoma among US Hispanic persons. An analysis of 81 melanoma cases from the New Mexico Melanoma Registry and New Mexico Tumor Registry between 1970 and 1986 found that a greater percentage (36%) of Hispanic patients had melanoma 2 mm or thicker in depth than NHWs (16%). A study that used California Cancer Registry data (1988-1993) evaluated 361 cases of invasive melanoma diagnosed in Hispanic patients and found that Hispanic persons (23%) were twice as likely to present with regional- or distant-stage melanoma than NHWs (P < .01). Despite the inherent limitations of classifying Hispanic race/ethnicity within registry-based cancer data, the consistent findings of more advanced melanoma presentation from large registry data support the validity of this trend.

Although the disparity in stage at presentation for melanoma in Hispanic persons and NHWs is less notable than that in NHBs and NHWs in Miami-Dade County, it nonetheless highlights an increasingly significant public health concern. Hispanic persons are among the fastest-growing minority groups in the United States; the Hispanic population has increased more than 50% since 1990 and is projected to reach 17% of the total US population by 2020. Moreover, the incidence of melanoma in Hispanic individuals has
continued to increase at an annual rate of 2.9% \( (P<.05) \) in the last 15 years, comparable to that in NHWs (3.0%).\(^2\) Despite the persistent increase in melanoma incidence among Hispanic persons, melanoma survival in this population has not improved to the same degree as that in white individuals. The 5-year cause-specific survival rate of melanoma is 77.1% for white Hispanic men and 86.8% for white Hispanic women compared with 86.5% in NHW men and 92.2% in NHW women.\(^1\) The gap in melanoma stage at diagnosis likely contributes to differences in survival.

The more advanced stage of melanoma in Hispanic and black patients highlights the disparity in secondary prevention of melanoma in minority populations. Evidence suggests that secondary prevention efforts such as skin cancer examination are suboptimal in Hispanic and black populations. According to the National Health Interview Surveys, among US adults, both Hispanic and black individuals are screened for skin cancer less frequently than NHWs.\(^21\) In 2000, only 3.7% of white Hispanic persons and 6.2% of black persons had had a recent skin examination performed by physicians compared with 8.9% of NHWs surveyed. Hispanic ethnicity is additionally correlated with a decreased likelihood of having a recent skin cancer examination (odds ratio, 0.61; \( P = .001 \)). Because the incidence of skin cancer is lower among minorities, a better understanding of risk within these populations would make screening more cost-effective. Hispanic ethnicity is also consistently associated with deficits in the use of other major cancer screenings, such as Papanicolaou tests, mammography, prostate-specific antigen screening, and colorectal screening.\(^22\) Such differences in delivery and use of health care resources are likely influenced by a complexity of factors, such as socioeconomic status, skin cancer awareness, and cultural and social values.\(^23,24\) Ineffective or insufficient public education efforts may also affect the use of skin cancer screening resources. A recent study\(^25\) on US media coverage from 1979 to 2003 found overall suboptimal media attention on skin cancer education; the amount of coverage on skin cancer has not increased since 1986, and the media pay little attention to screening and detection, with only 6.6% of stories on dermatologic detection and 5.5% of stories on self-detection of skin cancer.

Socioeconomic factors, such as poverty and lack of health insurance, influence access to and use of cancer screening services and treatment, thus contributing to current disparities in cancer burden among minority groups.\(^1,2,2,6,27\) In addition to melanoma, black patients are more likely to have many other types of cancer diagnosed at late stages.\(^28\) Data from the SEER program show that Hispanic white patients also have more advanced presentation of colorectal cancer, female breast cancer, and uterine cancer than NHWs.\(^29,30\) In Miami-Dade County, the black population has the lowest median household income of any group in Florida, at approximately $28,000. Hispanic individuals are similarly more likely to be unemployed and to live below the poverty level. The median household income for Hispanic persons is $33,000, compared with $49,000 in NHWs.\(^14\) Analysis of SEER registry data (1988-1999) indicates that populations in high-poverty census tracts have a higher percentage of late-stage cancer diagnoses than those in low-poverty census tracts for all cancers. The largest socioeconomic gradients occurred for patients diagnosed as having distant-stage melanoma (ratio of percentage diagnosed as having distant stage in the highest- and lowest-poverty areas is 2.5 for men \([9.17 \text{ in highest-poverty area and } 3.73 \text{ in lowest-poverty area}]) and 2.2 for women \([5.42 \text{ in highest-poverty area and } 2.52 \text{ in lowest-poverty area}]) from 1995 to 1999.\(^30\)

The delayed diagnosis of melanoma in Hispanic and black individuals could also reflect lower skin cancer awareness. Understandably, darker-skinned individuals perceive themselves at either lower or no risk for melanoma because much of the public education efforts have targeted the white populations, especially those with blue eyes and blond or red hair. Byrd et al\(^7\) have commented that lack of public education on melanoma risk and prevention in black communities may be a major factor in its advanced presentation. In a recent study that compared skin cancer awareness among Hispanic and non-Hispanic persons with similar access to health care, it was found that awareness of melanoma and nonmelanoma skin cancer and perception of risk among Hispanic individuals was less than among non-Hispanic persons. Hispanic individuals also performed skin examinations less frequently and did not know the clinical signs of skin cancer.\(^19\) In Miami-Dade County, a recent survey of high school students found that Hispanic students are more likely to sunbathe and use tanning salons (R.S.K., unpublished data, 2005).

Although varying cultural values may account for some differences in health care use, public education regarding melanoma risk in black and Hispanic persons and delivery of skin cancer screening and examinations represent the main potential areas of intervention to improve the stage at diagnosis of melanoma in these populations. We hope that earlier diagnosis of melanoma at a more favorable stage will ultimately improve melanoma survival rate in minority populations.

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Correspondence: Robert S. Kirsner, MD, PhD, University of Miami/Veterans Administration Medical Center, Department of Dermatology and Cutaneous Surgery, 1321 NW 14th St, Suite 505, Miami, FL 33125 (Rkirsner@med.miami.edu).

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