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Letter

Clinical Characteristics and Awareness of Skin Cancer in Hispanic Patients

Saba Javed BS[1], Syed A. Javed BS[2], Rana M. Mays MD[3], Stephen K. Tyring MD/PhD[3,4]

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[1]University of Texas Medical School at Houston, Houston, Texas

[2]Texas A&M School of Medicine, College Station, Texas

[3]Center for Clinical Studies, Webster, Texas

[4]Department of Dermatology, University of Texas Health, Houston, Texas

Correspondence:

Saba Javed
1614 Roaring Springs ln., Seabrook, TX 77586
sabajaved23@gmail.com
Contact number: 832-660-8884
Fax number: 281-335-4605

Abstract

Skin cancer in darker skin is associated with considerable morbidity and mortality. We sought to assess the clinical characteristics of cutaneous malignancy amongst Hispanic skin cancer patients and compare them to age-matched non-Hispanic Caucasians. In this retrospective study, 150 Hispanic skin cancer patients were identified from electronic medical records and age-matched to 150 non-Hispanic Caucasian controls with skin cancer. The incidence of actinic keratoses (AKs) in Hispanic skin cancer patients (34.0%) was statistically lower than age-matched non-Hispanic Caucasian skin cancer controls (61.3%, P <0.001; odds ratio, 3.08; 95% confidence interval, 1.92 - 4.93). Moreover, non-Hispanic Caucasian SCC (squamous cell cancer) controls were much more likely to report AKs (36.1%, P = 0.003) than Hispanic SCC patients (25.0%, P = 0.19). This study illustrates a lower incidence of AKs in Hispanic skin cancer patients as compared to their age-matched non-Hispanic Caucasians. The Hispanic skin malignancies present at a more advanced state and there is usually a lack of awareness in such cases. Therefore, patient knowledge and education is crucial for early detection and prevention of skin cancer in the Hispanic population.

Key Words: Hispanics, skin cancer, actinic keratosis, basal cell carcinoma, squamous cell carcinoma, melanoma, awareness, prevention.

Introduction

Non-melanoma skin cancer (NMSC) is the most common malignancy in the United States (U.S.) with an estimated 0.9-1.2 million new cases developing each year [1]. Studies have shown an increasing trend in the incidence of NMSC skin cancer in the U.S. in all skin types owing to increased exposure to ultraviolet light influenced by lifestyle and environmental changes [2]. Hispanics comprise the largest minority group in the U.S. Although the incidence of skin cancer in Hispanics is lower than non-Hispanic Caucasians, it is associated with higher morbidity and mortality [3, 4]. These patients present with advanced stage malignancy and poor prognosis, potentially owing to the lack of awareness and education about skin cancer [5]. Another potential explanation could be the lower incidence of actinic keratosis (AK), a precancerous lesion, in Hispanics, which would alert the patient to visit the clinician sooner. To date no study has investigated the incidence of AKs amongst Hispanics.

In this study, the clinical characteristics of skin cancer in Hispanics along with the level of awareness and prevention measures in these patients will be examined and compared to the non-Hispanic Caucasians with skin cancer.

Methods

This study includes patients who were diagnosed with skin cancer by board certified dermatologists. The diagnosis of skin cancer was defined as one of the following: basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma. Patients were evaluated at the Dermatological Association of Texas and the University of Texas Health Science Center dermatology clinics in Houston, Texas. Because this is a retrospective study, the institutional review board approval was waived.

Selection of Cases

Potential patients were identified from a broad search of diagnostic and billing codes (*ICD-9* [*International Classification of Diseases, Eighth Revision*] *codes 172.xx* and *173.xx*) for malignant melanoma and neoplasm of skin, respectively. Medical records were searched for diagnosis of BCC, SCC, and melanoma. Amongst these patients, those who self-identified themselves as Hispanics in the clinic admission forms were isolated. Once Hispanic ethnicity and history of skin cancer was confirmed, the medical record was abstracted and relevant data was collected on the patient's medical history.

Selection of Controls

Potential controls were identified from a broad search of diagnostic and billing codes (*ICD-9 codes 172.xx* and *173.xx*) for malignant melanoma and neoplasm of skin, respectively. Medical records were searched for diagnosis of BCC, SCC, and melanoma. Amongst these patients, the controls were those who self-identified themselves as non-Hispanic Caucasians. Cases were age-matched with the controls.

Statistical Analysis

The continuous variables were reported as mean (standard deviation, SD) and were analyzed using the unpaired 2-tailed *t*-test. The discrete variables were analyzed using the χ^2 test. For each variable, including sex, age, race, and others, we computed the odds ratios (ORs) and corresponding 95% confidence intervals (CIs). Statistical analyses were performed using Epi-Info™ Version 3.5.1.

Results

The results are detailed in **Tables 1, 2** and **3**. The mean age (SD) for Hispanics and non-Hispanic Caucasians was 65.8 (13.2) and 66.1 (13.7), respectively. Cases and controls were subdivided into age groups of <50, 50-59, 60-69, and ≥70; distribution according to the age groups is shown in **Table 1**. Amongst Hispanic cases, 65 (43.4%) were male and 85 (56.7%) were female whereas amongst non-Hispanic Caucasian controls, 67 (44.7%) were male and 83 (55.3%) were female. In Hispanics skin cancer cases, BCC (81 cases [54.0%]) was the leading cause of cancer followed by SCC (51 cases [34.0%]), and melanoma (18 cases [12.0%]). Likewise, amongst non-Hispanic Caucasians, BCC (101 controls [67.3%]) was followed by SCC (40 controls [26.7%]), and melanoma (9 controls [6.0%]). The location of the malignancy was divided as follows: face, upper extremity, lower extremity, and trunk. The anatomic distribution of skin cancer for both groups is detailed in **Table 1**. The distribution and variation of the different histological subtypes is noted in **Table 3**. Amongst Hispanics, 23 cases (15.3%) reported recurrence of their malignancy as compared to 47 non-Hispanic Caucasians (31.3%, $P = 0.001$). A total of 51 Hispanic cases (34.0%) and 92 non-Hispanic Caucasian controls (61.3%, $P < 0.001$) had a current diagnosis or prior history of AK.

Discussion

Actinic keratosis (AK) is a precancerous lesion thought to progress to SCC and serves as the third most common reason for dermatologic consultation.[6, 7] The lesion consists of altered keratinocytes with chromosomal abnormality and focal areas of epithelial dysplasia, predominantly in sun-exposed areas [8]. Actinic keratoses appear as papules or plaques virtually anywhere on the body and are usually erythematous with a rough hyperkeratotic surface [9]. Studies suggest that 1-10% of AKs develop into SCC; conversely, approximately 27% of SCCs arise from AKs [6, 10]. The risk factors for AK include increasing age, male gender, and light skin type [7]. The incidence of AK in darker skinned individuals of African origin is rare [11]. Accordingly, in the present study, the incidence of AK in Hispanic skin cancer cases (34.0%) was statistically lower than age-matched non-Hispanic Caucasian skin cancer controls (61.3%, $P < 0.001$; odds ratio, 3.08; 95% confidence interval, 1.92 - 4.93).

Because AKs are considered premalignant tumors with possible progression to SCC, the lesions serve as a reliable marker for those most predisposed to development of invasive SCC [7]. In this study, of the 36 non-Hispanic Caucasian SCC controls, 13 (36.1%, $P = 0.003$) had a history of AK; conversely only 9 of the 36 (25.0%, $P = 0.19$) Hispanic SCC cases had a history of AK. These results possibly suggest that whereas a history of AK could be indicative of future or current skin cancer in non-Hispanic Caucasians, such is not necessarily the case for Hispanics.

We examined the histological subtypes of BCC, SCC, and melanoma. For BCC, non-Hispanic Caucasians were more likely to have nodular BCC as compared to Hispanics ($P = 0.05$). However, more Hispanics (44.4%) had infiltrating BCC than the controls (23.8%, $P = 0.03$). Moreover, a higher percentage of Hispanics (21.6%) were diagnosed with well-differentiated SCC than the age-matched non-Hispanic counterparts (15.0%). Likewise, invasive melanoma, lentigo maligna melanoma, was more common in Hispanics (33.3%) than the controls (22.2%). Thus, skin cancer in Hispanics is associated with an increased morbidity and mortality, possibly owing to lack of awareness [3, 4]. This could partly relate to the fact that information about skin cancer in the U.S. tends to be from multi-media sources whose message mainly emphasizes high-risk populations, such as those with light skin [12]. Warning signs, prevention, and early detection are all tied to the high-risk population in these messages. Therefore, non-high-risk individuals (such as Hispanics) ignore such warning signs because they assume they are not at risk.

To see if any progress is being made to raise awareness, hundreds of Hispanic patients were asked verbally at the Dermatological Association of Texas, the site where we conducted this study, if they have seen or heard (i.e. newspapers, radio or television) any skin cancer warning in Spanish. All had a negative response. Likewise, Pipitone et al. conducted a survey study on skin cancer awareness in Hispanics in which none of the Hispanics ever reported being taught self skin examinations [5]. Without skin cancer awareness, preventative care is dismal. A recent survey study reported that 17% of minorities (including African American, Asian, Hispanic, and other) had presented to a physician for full body skin exam in contrast to 61% of non-Hispanic Caucasians ($P < 0.0001$). In the same study, 96% of Caucasian patients and 65% of non-Caucasian patients endorsed the use of sunscreen ($P = 0.0012$) [13]. Another review has illustrated poor skin cancer screening prevention initiatives in Hispanics owing to lack of awareness about signs and symptoms, delay in seeking follow ups, lack of skin exam instruction, and decreased awareness amongst individuals and physicians [14, 15].

Age is a significant risk factor for both skin cancer and AKs. In our study, the overall incidence of skin cancer and that of AK amongst skin cancer patients increased with each decade of life in both Hispanics and non-Hispanic Caucasians. In the U.S., the mean age of skin cancer diagnosis in Americans is 65 ± 2 years and approximately 40-50% of Americans over the age of 65 have a history of the disease [16, 17]. The incidence of AK is more common in sun-exposed areas. Accordingly, in this study, 45% of non-Hispanic Caucasians with skin cancer on the face had a history of AK ($P = 0.04$) whereas that was the case in only 33.3% of Hispanics with facial skin cancer ($P = 0.3$).

A recent report found an increasing rate of melanoma on the lower extremities in Hispanics [15]. The anatomical location of skin cancer in our study was slightly greater on the trunk and lower extremities in Hispanic patients than the controls, although this was not statistically significant. Male to female ratio in occurrence of all types of skin cancer was similar in both groups. However recurrence of all total skin cancers in the Hispanics group was significantly lower than the non-Hispanic Caucasian controls (23% versus 47%, $P = 0.001$). This could potentially relate to the lack of further follow-up with a clinician after the diagnosis of skin cancer in the Hispanic patients. This potential loss to follow up could further be attributed to the Hispanic patient's lack of awareness and understanding of their disease and its prevention.

Conversely, tanning parlor use is rare among Hispanics which could also possibly contribute to the lower recurrence of skin cancer.

The main limitation of the study is the small sample size. Second, the study was retrospective in nature, hence potentially prone to registration errors or incorrect use of *ICD* codes. It is possible that owing to incorrect *ICD* codes, some of the skin cancer patients were not enrolled in the study. However, each patient's chart was reviewed thoroughly to ensure the proper diagnosis. Moreover, because this is an age-matched study, the mean age and the incidence of skin cancer in different age groups in non-Hispanic Caucasians does not necessarily represent the incidence in the population at large.

Conclusion

We report clinical characteristics of skin cancer in Hispanic patients along with age-matched non-Hispanic Caucasians with skin cancer. With considerable morbidity and mortality associated with skin cancer cases in Hispanics, patient awareness and education is crucial. We observed a lower incidence of AKs in the Hispanic population as compared to non-Hispanic Caucasian controls with skin cancer. This could potentially relate to more cases of squamous cell cancer occurring *de novo* in the Hispanic group, fewer exposures to tanning beds, or the potential lack of early detection, awareness, and prevention in Hispanics. Some of this could be attributed to language barriers and/or less direct education in this ethnic group. With the continued growing

population of Hispanics in the US at higher rates than ever before, early detection, proper education, and efficient screening is indicated. Perhaps future studies can further investigate these questions in other races and groups.

Table 1: Demographic Information on Hispanic and non-Hispanic Caucasian skin cancer cases.
*P < 0.05 implied statistically significant

		Hispanic (*n* = 150)	**Non-Hispanic Caucasian** (*n* = 150)	***P*-Value***	**Adjusted Odds Ratio (95% Confidence Interval)**
Age, mean (SD)		65.8 (13.2)	66.1 (13.7)		
Age group, No. (%)					
	<50	26 (17.3)	26 (17.3)		
	50-59	31 (20.6)	31 (20.6)		
	60-69	39 (26.0)	39 (26.0)		
	≥70	54 (36.0)	54 (36.0)		
Gender, No. (%)					
	Male	65 (43.3)	67 (44.7)		
	Female	85 (56.7)	83 (55.3)		
Skin Cancer, No. (%)					
	Basal Cell	81 (54.0)	101 (67.3)		
	Squamous Cell	51 (34.0)	40 (26.7)		
	Melanoma	18 (12.0)	9 (6.0)		
Location of Skin Cancer, No. (%)					
	Face	56 (37.3)	71 (47.4)		
	Upper extremity	47 (31.3)	47 (31.4)		
	Lower extremity	28 (18.7)	21 (14.0)		
	Trunk	19 (12.7)	11 (7.3)		
Recurrence of Skin Cancer, No. (%)				0.001	2.52 (1.43-4.42)
	Yes	23 (15.3)	47 (31.3)		
	No	127 (84.7)	103 (68.7)		
Actinic Keratosis, No. (%)				<0.001	3.08 (1.92-4.93)
	Yes	51 (34.0)	92 (61.3)		
	No	99 (66.0)	58 (38.7)		

Table 2: Incidence of Actinic Keratoses in non-Hispanic Caucasian and Hispanic skin cancer patients.

		Hispanic		Non-Hispanic Caucasian	
		AK	**No AK**	**AK**	**No AK**
		(*n* = 51)	(*n* = 99)	(*n* = 92)	(*n* = 58)
Age, mean (SD)		69.5 (15.7)	60.5 (13.5)	70.2 (17.8)	58.7 (14.6)
Age group, No. (%)					
	<50	9 (17.6)	17 (17.2)	16 (17.4)	10 (17.2)
	50-59	12 (23.5)	19 (19.2)	17 (18.5)	14 (24.1)
	60-69	13 (25.5)	26 (26.3)	28 (30.4)	11 (19.0)
	≥70	17 (33.3)	37 (37.4)	31 (33.7)	23 (39.7)
Gender, No. (%)					
	Male	21 (41.2)	44 (44.4)	44 (47.8)	23 (39.7)
	Female	30 (58.8)	55 (55.6)	48 (52.2)	35 (60.3)
Skin Cancer, No. (%)					
	Basal Cell	32 (62.7)	49 (49.5)	70 (76.1)	31 (53.4)
	Squamous Cell	13 (25.4)	38 (38.4)	16 (17.4)	24 (41.4)
	Melanoma	6 (11.8)	12 (12.1)	6 (6.5)	3 (5.2)
Location of Skin Cancer, No. (%)					
	Face	18 (35.3)	34 (34.3)	42 (45.7)	29 (50.0)
	Upper extremity	17 (33.3)	34 (34.3)	27 (29.3)	20 (34.5)
	Lower extremity	8 (15.7)	20 (20.2)	15 (16.3)	6 (10.3)
	Trunk	8 (15.7)	11 (11.1)	8 (8.7)	3 (5.2)
Recurrence of Skin Cancer, No. (%)					
	Yes	8 (15.7)	15 (15.2)	25 (27.2)	22 (37.9)
	No	43 (84.3)	84 (84.8)	67 (72.8)	36 (62.1)

Table 3: Distribution of skin cancer histological subtypes

		Hispanic	Non-Hispanic Caucasian	*P*-Value*	Adjusted Odds Ratio (95% Confidence Interval)
BCC		(*n* = 81)	(*n* = 101)		
	Nodular	25 (30.9)	54 (53.5)	0.05	1.51 (0.67 – 2.58)
	Superficial	13 (16.1)	18 (17.8)		
	Infiltrating	36 (44.4)	24 (23.8)	0.03	1.79 (0.95-2.91)
	Other	7 (8.6)	5 (4.9)		
SCC		(*n* = 51)	(*n* = 40)		
	In-situ	18 (35.3)	15 (37.5)		
	Keratoacanthoma	10 (19.6)	10 (25.0)		
	Poorly-differentiated	2 (3.9)	4 (10.0)		
	Moderately-differentiated	10 (19.6)	6 (15.0)		
	Well-differentiated	11 (21.6)	5 (12.5)		
Melanoma		(*n* = 18)	(*n* = 9)		
	Superficial spreading	4 (22.2)	3 (33.4)		
	Lentigo maligna	4 (22.2)	2 (22.2)		
	Lentigo maligna melanoma	6 (33.3)	2 (22.2)		
	Acral lentigious	2 (11.1)	2 (22.2)		
	Other	2 (11.1)	0		

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