

CLINICO-EPIDEMIOLOGICAL STUDY

Malignant Melanoma in Puerto Rico: an Update

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ABSTRACT. A study about the incidence of malignant melanoma in Puerto Rico during the calendar year 1996 was carried out compiling the information submitted by pathological reports to the Puerto Rico Cancer Registry and identifying similar reports at other pathology laboratories. A total of 107 new cases were documented in 1996, resulting in an incidence of 3.03 (\pm 17.9) per 100,000 persons for that particular year. The age of the patients fluctuated between 19 and 88 years with a mean of 61.3 years, most of them being between 50 and 80 years. More than half of the cases (54.2%) were located in the head and neck, and

the extremities. Thickness measurement of the neoplasm was reported in only 42% of the cases. In 60% of those cases in which the tumor thickness was reported, it was found to be less than 1.49mm. Previous data in Puerto Rico from the years 1981 to 1986 had shown a tendency to an increase in the incidence of melanoma per 100,000 inhabitants rising 1.20 to 1.52 respectively. The present study reflects a continuation of the same pattern, with a two-fold increase in the last 10 years (from 1.52 to 3.03).

Key words: Malignant melanoma, Puerto Rico, Incidence.

As the incidence of malignant melanoma continues an increasing trend worldwide, the interest in determining the impact of this disease in the population also becomes important. In the United States, malignant melanoma ranks as the seventh most frequent cancer (1). The risk of developing malignant melanoma there has now reached 1 in 87; more than a 1800% increase since 1930's (2). Greater increments have been observed in early stage melanoma and melanomas that are thin (3). Patterns of sunburn site specificity consistent with intense intermittent sun exposure have been identified in those patients (4). Studies in Jordan (5), Norway (6), Sweden (7), Europe (8), Czech Republic (9), Mediterraneans (10), Australia (11,12) and England(13) have recognized the increasing incidence of this disease, and in all of them, sunlight exposure is considered as one, if not the most important factor in the development of this neoplasm. In an effort to reduce the incidence of malignant melanoma,

skin self-examination programs, skin cancer information and/or free skin examination program have been established to emphasize its main objective,(14,15) namely the early diagnosis of the disease.

As an island in the Caribbean Sea, Puerto Rico is exposed to intense sunlight all year. The great variety of personal characteristics and pigment traits in our racially-mixed population makes difficult the correlation of our data with that obtained in other studies where the population is mostly caucasian. It is then important to reevaluate the epidemiological characteristics of malignant melanoma in our population and compare them with the previous study by Vazquez-Botet, Latoni and Sánchez (16) which addressed that problem.

Materials and Methods

All the pathological reports of malignant melanoma submitted during 1996 to the Puerto Rico Cancer Registry were compiled and examined jointly with the pathological reports of several private pathology laboratories. The cases from the Registry Center were matched with those of the private laboratories in order to eliminate those that might have been duplicated during the compilation of the data. Denominators for the incidence rate calculations were obtained from estimates of the U.S. Bureau of the

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Census categorized by age and sex. Melanoma incidence was also analyzed by age, sex, anatomic distribution and tumor thickness.

Results

In 1996, the melanoma crude incidence was 3.03 per 100,000 population with a total of 107 new cases identified during that period. Fifty-one cases (47.7%) were females and 54 (50.5%) were males. The incidence rate adjusted for age was 3.23 per 100,000 for males and 2.58 per 100,000 for females. Sex was not determined in two of the cases. The age fluctuated between 19 and 88 years with a mean of 61.3 (± 17.9) years; most of the patients being between 50 and 80 years of age with a peak between 60 and 69 years (Figure 1).

In most of the cases (54.2%), the tumor was situated in the region of the head and neck, and the extremities (Table 1). The head and neck was similarly affected in men as

Figure 1. Distribution by age of malignant melanoma cases in Puerto Rico, 1996, n=107.

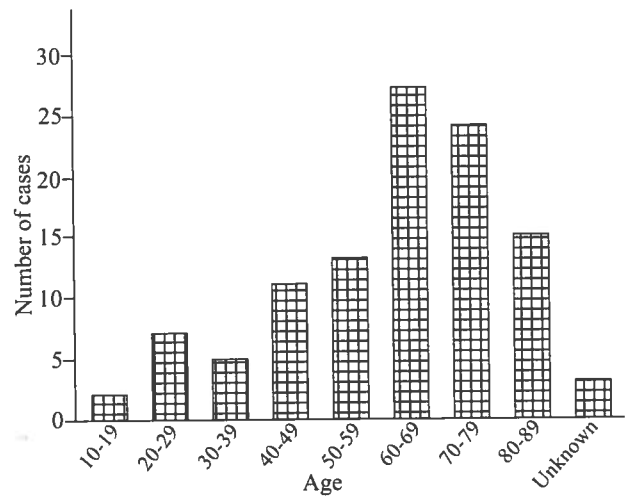


Table 1. Anatomic distribution of malignant melanoma cases in Puerto Rico, 1996, n=107.

Anatomic site	General	%	Males	%	Females	%	Gender not specified
Head and neck	31	29.0%	16	29.6%	15	29.4%	0
Arm and forearm	7	6.5%	3	5.6%	4	7.8%	0
Leg and thigh	9	8.4%	3	5.6%	5	9.8%	1
Foot	11	10.3%	4	7.4%	7	13.7%	0
Chest	2	1.9%	1	1.9%	1	2.0%	0
Back	18	16.8%	11	20.4%	6	11.8%	1
Abdomen	3	2.8%	2	3.7%	1	2.0%	0
Axila	4	3.7%	4	7.4%	0	0.0%	0
Torso (not specified)	4	3.7%	2	3.7%	2	3.9%	0
Metastatic	8	7.5%	3	5.6%	5	9.8%	0
Others	4	3.7%	1	1.9%	3	5.9%	0
Unknown	6	5.6%	4	7.4%	2	3.9%	0
Total	107		54		51		2

in women. Other sites with an important number of cases include the feet and back. Even though in males the most common site was in the extremities, they had higher percentage in the trunk (37.0% vs 19.6%) when compared to females.

Melanoma *in situ* was the most common specific histopathologic diagnosis (35 cases; 32.7% of the reported cases; 40.2% of cases were not classified). Breslow's thickness was reported in only 42.1% of the cases (Table 2). Melanomas localized on the head and neck had thickness toward both extremes (50%, <0.75mm; 33%

>3.0). Most tumors localized in the limbs were less than 1.49mm in depth (47.1% < 0.75mm; 23.5% between 0.76 - 1.49mm).

Discussion

An increasing trend in the incidence of malignant melanoma is noticed when we compare the data obtained in this study with that of a previous study in Puerto Rico (16). The melanoma crude incidence in 1977, 1981 and 1986 was 0.82, 1.20 and 1.52 per 100,000 persons

Table 2. Thickness (mm) of malignant melanoma in PR, 1996, n=45.

Anatomic site	< 0.75		0.76 - 1.49		1.50 - 2.99		>3.0	
Head and neck	6	13.3%	1	2.2%	1	2.2%	4	8.9%
Torso	3	6.7%	4	8.9%	4	8.9%	2	4.4%
Arm and forearm	4	8.9%	0	0.0%	0	0.0%	0	0.0%
Leg and thigh	3	6.7%	2	4.4%	0	0.0%	1	2.2%
Foot	1	2.2%	2	4.4%	3	6.7%	1	2.2%
Unknown or other	1	2.2%	0	0.0%	2	4.4%	0	0.0%
Total (45)	18	40.0%	9	20.0%	10	22.2%	8	17.8%

respectively while the incidence 10 years later (1996) was 3.03 (Table 3). Males had an incidence adjusted for age higher than females (3.23 vs. 2.58 respectively). The age groups most affected were those between 50 and 80 years of age with a peak at the seven decade, this age distribution is similar to the 1990 study (16). The single anatomical site most commonly affected was the head and neck; an important difference from the previous study, where the head and neck was the third most common location. Head and neck, and extremities account for 54.2% of the cases. The number of cases with malignant melanoma in the feet has decreased from 22.07% to 10.3%. The total number of cases in the trunk were the same as those in the head and neck (31 cases), being the back the most affected site (18 out of 31). Differences were also noticed

Table 3. Melanoma crude incidence rate in Puerto Rico, 1977-1996 (per 100,000 inhabitants)

Year	1977	1981	1986	1996
Crude incidence	0.82	1.2	1.32	3.03

in the anatomical distribution between males and females. Approximately two thirds of the melanomas in the trunk were males (most of them in the back), while 60% of the cases in the head and neck and extremities were females. Distribution in the head and neck was similar for both males and females.

Patterns of skin exposure to sun may be one of the factors affecting the anatomic distribution of the tumor. The increased exposure of the torso in males and legs/feet in females can be a factor in the location difference. Also the lack of head protection to sun exposure in both males and females may account for the similar incidence in both sexes.

An important finding in this study as compared with the previous study is the predominance of thin melanomas and the increase of melanoma *in situ* diagnosis. This observation follows the trend reported in similar studies in the United States (3). Tumor thickness was reported in only 42.1% of the cases (45 in total). As most studies have demonstrated the importance of tumor thickness in the prognosis of the disease, the need to include this information in the pathology report becomes essential. Besides the increased incidence of malignant melanoma in the last ten years, the predominance of thin melanomas (60% less than 1.49mm thickness), results in an improvement in the overall prognosis of the patients with this diagnosis. Thus, it is essential to focus all efforts in the early diagnosis of malignant melanoma and the treatment of its lesions in order to decrease the morbidity and mortality associated with the diagnosis. Besides sun exposure, other risk factors such as skin type or pigment traits, family history, anthropometric measures and the presence of melanocytic nevi have been identified as important, but none of them are modifiable (1). Efforts to decrease sun exposure together with the establishment of proper initiatives for early diagnosis either by skin cancer information programs or self-examination techniques are helpful in early diagnosis (14,15).

Resumen

Se llevó a cabo un estudio acerca de la incidencia de melanoma maligno en Puerto Rico durante el año natural 1996 recopilando la información sometida al Registro de Cáncer de Puerto Rico mediante reportes patológicos e identificando reportes similares en varios laboratorios de patología. Se documentaron un total de 107 casos nuevos para ese período, lo que resulta en una incidencia cruda de 3.03 por 100,000 habitantes para ese año en particular. La edad de los pacientes fluctuó entre los 19 y 88 años

con promedio de 61.3 años (± 17.9), la mayoría entre 50 y 80 años. En más de la mitad de los casos (54.2%) las lesiones estaban localizadas en la cabeza y cuello y las extremidades. La medida de grosor del tumor fue reportada en sólo 42% de los casos. En 60% de los casos en que el grosor fue reportado, este fue menor de 1.49mm. La información obtenida en estudios anteriores en Puerto Rico para los años 1981 al 1986 había demostrado un aumento en la incidencia de melanoma, de 1.20 a 1.52 por 100,000 habitantes respectivamente. El estudio presente refleja el mismo patrón, duplicándose la incidencia en 10 años (de 1.52 a 3.03 por 100,000 habitantes).

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