


Tropical medicine rounds

Clinical and histological characteristics, and management of melanoma in French Guiana, 2007–2018

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Introduction

Melanoma and non-melanoma skin cancers are influenced by a combination of factors, such as skin pigmentation, age, or genetic predisposition.¹ Several environmental factors may promote skin cancers in tropical areas, including intense ultraviolet radiation or high biodiversity of oncogenic microbial pathogens.² Melanoma is well-studied in fair-skinned populations, with an increased incidence in recent decades.³ However, fewer studies are available on melanoma in Afro-Caribbean populations.^{4–7} If incidence rates in Caribbean and Central America are 5–15 times lower than in the Western World, mortality rates remain important.³ A recent review of studies on melanoma in South America highlighted the importance of improving melanoma

Abstract

There are few studies available on melanoma in Afro-Caribbean and Amerindian populations of South America. French Guiana deserves a study due to its specific health system and diversity of phototypes. The objectives of this study were to evaluate the incidence, histological and clinical characteristics of melanoma in French Guiana. A retrospective study was conducted from October 2007 to January 2018 on all primary melanomas observed at the Cayenne Hospital Centre. Thirty-nine patients were included. The incidence rate (1.61/10⁶ inhabitants/year) was low compared with mainland France. Median age was 58, and gender ratio 1 : 16. Clear phototype (I/II) patients were the most frequent (38.5%), but a significant amount of melanoma also occurred in darker skin. Median Breslow was higher in dark phototypes than in fair-skinned patients. Superficial spreading melanoma (SSM) was the most common histological type (33.3%), particularly in patients with clear phototype (61.5%). Acral lentiginous melanoma was found only in darker-skinned patients (29.1%). The trunk was involved in 66.6% in the clearest group whereas foot was the most common location in the darkest group (60% in V/VI phototypes). Surgery was the most frequently used treatment (79.5%). At the end of the study period, 53.8% had been lost to follow-up. In conclusion, the incidence of melanoma in French Guiana is lower than in mainland France but remains a public health concern, as dark-skinned populations often present with advanced diseases. Awareness and prevention in these communities must be improved.

awareness and data collection.⁵ It also underscored the epidemiologic features of melanoma in populations of mixed ancestries (Caucasian, Amerindians, African-Americans) which can be found across the continent.

French Guiana is an overseas French territory in South America, inhabited by Native Amerindians, white-skinned workers from Europe, and dark-skinned populations of African origins. Migrants from Laos, China, and Brazil have also settled in the last decades. The geography of French Guiana is characterized by a small coastal strip where most medical facilities are found and a vast hinterland covered by rainforests, where a traditional way of life is maintained in isolated communities. A free universal healthcare is provided to the population. There is no published data on melanoma incidence and characteristics in

this territory, though similar studies have been performed in other French overseas territories like Martinique (French West Indies), which reported a higher median age of onset than in mainland France, a higher average Breslow index, and a predominance of ALM.⁷

The objectives of this study were to evaluate the incidence, histological, and clinical characteristics of melanoma in French Guiana.

Methods

We conducted a retrospective study from October 1, 2007, to January 1, 2018, on all primary melanomas observed at the Cayenne Hospital Centre, which is the referral center for all skin cancers in French Guiana. Clinical and histological features were obtained from medical records. Phototype was classified according to Fitzpatrick groups in clear (phototype I, II), intermediate (III and IV), and dark (V and VI).

Results

During the study period, 39 patients were included (incidence = 1.61/10⁶ inhabitants/year), including 21 men and 18 women (gender ratio: 1 : 16). Their characteristics are presented in Table 1. Median age was 58. Clear phototype (I/II) patients were the most frequent (38.5%), but a significant amount of melanoma also occurred in phototypes III/IV (15.4%) and V/VI (20.5%). For 10 patients (25.6%), phototype was not reported. Median follow-up for patients with clear and dark/intermediate phototypes were respectively 22 months (4–48) and 5 months (2–54).

Median Breslow was 1.5 mm (0.25–12) in the overall population, lower in phototypes I/II (0.8 mm [0.3–2.5]) than in darker phototypes (5 mm [0.3–12]).

Superficial spreading melanoma (SSM) was the most common histological type (33.3% of all patients) particularly in the clear phototype group (61.5%). Acral lentiginous melanoma (ALM) was found only in dark-skinned patients: 12.5% of group III/IV and 16.6% of group V/VI.

Concerning the most common locations, the trunk was involved in 66.6% of cases in the group I/II vs. 8.3% only in the III/IV group and no patients in the V/VI group. Conversely, foot was the most common location in the darkest group (60% of cases with V/VI phototypes, 20% only in III/IV phototypes, and no case among patients of group I/II).

There was no significant difference between phototype groups for other locations, such as limb (12.8% of the study population), face and neck (5.1%), nails (5.1%), mucosal locations (2.6%), and choroid (2.6%). In 10.3% of cases, the primitive location was not found.

Thirteen patients (33.3%) presented a metastatic stage, four were treated with chemotherapy and four with immunotherapy. Only one received targeted therapy in mainland France. Radiotherapy was only performed for one patient. Surgery was the most

Table 1 Clinical and histological characteristics of all patients with melanoma according to their phototypes, French Guiana, 2007–2018

	Clear phototypes (I–II)	Dark/intermediate phototypes (III–VI)
Number of patients	15	24
Gender, n (%)		
Male	10 (66.7)	11 (45.8)
Female	5 (33.3)	13 (54.2)
Median age (years)	57.5 [34–84]	58.5 [6–101]
Median follow-up (months)	22 [4–48]	5 [2–54]
Histology and classification		
Median Breslow (mm)	0.8 [0.3–2.5]	5 [0.3–12]
Superficial spreading	9 (61.5)	5 (20.8)
Acral lentiginous	0	2 (8.3)
Lentigo melanoma	0	1 (4.2)
Epithelioid	0	1 (4.2)
Nodular melanoma	0	1 (4.2)
Achromic	1 (6.6)	1 (4.2)
Unclassified/unknown	5 (33.3)	13 (54.2)
Metastatic	5 (33.3)	8 (33.3)
Location		
Trunk	10 (66.6)	4 (16.7)
Face and neck	0	2 (8.3)
Feet	0	10 (41.6)
Limbs (excluding feet)	3 (20)	2 (8.3)
Nail	1 (6.6)	1 (4.2)
Choroid	1 (6.6)	0
Mucosal (other than choroid)	0	1 (4.2)
Unknown	0	4 (16.7)
Death	1 (6.6)	3 (12.5)

frequently used treatment (79.5%). BRAF status was searched in four cases and was always negative. Among these four patients, three had a nonspecific histology, and one was ALM.

At the end of the study period, 35.9% of patients were alive and 10.3% died (53.8% had been lost to follow-up).

Discussion

As observed in the French West Indies,^{7,8,9} the incidence of melanoma in French Guiana appears lower than incidence rates in mainland France (7 vs. 14 to 17/100,000 inhabitants). This is explained by the predominance of populations with highly pigmented skin, which represent about two-thirds of the inhabitants of French Guiana. Indeed, melanoma mostly concerns people with a clear phototype, more sensitive to ultraviolet radiation.^{2,3}

Clear phototypes, as expected, represented the largest group in this study. SSM was the most frequent histological type in clear phototypes, as reported in several studies on African-Americans.^{2,10} Location on the trunk was predominant among

fair-skinned patients (66.6%). Similar data have been reported among White Americans.¹⁰ This is an interesting finding, as melanomas on non-exposed areas such as the trunk are more related to inherent, genetic susceptibility than to environmental exposure such as sunburns or continuous exposition.¹¹

Dark-skinned populations presented very different features. Location on the feet was frequently found in these groups (60% in IV/VI phototypes). Acral melanoma position is common in Africans, Australian Aboriginal communities, and among Chinese and Indians in Asia.² Median Breslow was higher in dark phototypes than in fair-skinned patients, as in studies performed in the French West Indies.⁷

Our data do not show the same histological trend than the Martinique study. In the latter, the proportion of acral lentiginous melanoma among dark phototypes was as high as 62%,⁷ a figure which mirrored the proportions observed in most American studies.¹⁰ Only 12.5% of our darkest patients presented with ALM. However, these discordances can probably be explained by the small size of our study population and an important proportion of missing histological data.

Previous studies in South Africa⁵ and the U.S.A.¹⁰ have highlighted poorer outcomes in dark-skinned populations, as an indicator of poverty and lack of healthcare access. Though a survival analysis was not achievable in our study, the important proportion of patients lost to follow-up suggests an insufficient health network and poor living conditions for many patients. The important proportion of metastatic stages (33.3%) and the high median Breslow suggest that melanomas were often diagnosed at an advanced stage, which could be explained by the isolation of some populations or a lack of medical knowledge.^{12,13} A higher Breslow index in dark phototypes has also been reported in Martinique.⁷ Hospital-based studies are likely to include many advanced melanomas, but the scarcity of dermatology offices in French Guiana means that our study population probably reflects the overall melanoma population of this territory. Also, our study shows that recent treatments such as immunotherapy or targeted therapy were seldom used in patients with metastatic diseases, probably due to a lack of healthcare access. Though French Guiana is gifted with a French universal healthcare system, illegal immigrants may not benefit from the same rights, and isolated populations in the hinterland often lack basic medical knowledge.

Lack of public awareness could be an explanation for diagnosis delays and the large number of patients lost to follow-up. Local populations are probably more aware of infectious diseases (such as HIV or malaria) or parasitic skin disorders (such as cutaneous leishmaniasis) than neoplastic ones.¹⁴ However, public education in mass media campaigns showed beneficial behavioral modifications in various countries, especially in Australia,¹⁵ and should be intensified in French Guiana.

There are limitations to this study, such as a small number of patients and an important proportion of missing data. The high number of patients lost to follow-up or the absence of crucial data in medical files could be seen as major weaknesses.

However, this lack of medical information is a frequent feature in isolated areas of South America and should be taken into consideration when designing public health programs in oncology. These results highlight the need for important improvement of follow-up care after cancer treatment in remote areas.

Conclusion

The incidence of melanoma in French Guiana is lower than in mainland France. However, its risk is not to be ignored, as dark-skinned populations often present with advanced diseases. An appropriate diagnosis can be delayed in isolated populations. These findings underline the importance of improving awareness and prevention in these communities.

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