

SKIN CANCER IN AFRICAN ALBINOS

ALKASSIM YAKUBU and OLUWATOPE A. MABOGUNJE

A review of 775 normally pigmented Africans and 18 African albinos with malignant skin tumours showed that squamous cell carcinoma was the most common tumour type, in contrast to Caucasians, in whom basal cell carcinoma is most frequent. In African albinos squamous cell carcinoma of the head and neck region was most frequent. However, the proportion of basal cell carcinomas was low also among albinos but higher than among normally pigmented patients. In contrast to the normally pigmented patients, there were no squamous cell carcinomas on the limbs in albino patients. We suggest that this difference was due to environmental factors, such as chronic leg ulcers, which might have been less influential in the albinos, who seldom lived more than 30 years. No cases of cutaneous melanoma or Kaposi sarcoma were found in the albino group.

Skin pigmentation apparently protects against skin cancer (1). Among black Africans, however, several environmental factors, such as burn scars and chronic leg ulcers may account for skin lesions which may lead to cancer. Both skin pigmentation and different environmental factors are probably responsible for the different patterns of skin cancer in Africans and Caucasians. African albinos lack skin pigmentation but are subject to environmental factors similar to those affecting the rest of the population. In the present study we report on the clinical features of malignant skin tumours in normally pigmented Africans and albinos seen in a hospital in Zaria, Nigeria.

Material and Results

The material was collected at Ahmadu Bello University Hospital, Zaria, Nigeria during a recent 12-year period and included all cases with malignant skin tumours seen at the hospital. There were 775 normally pigmented African patients (524 males and 251 females) and 18 African albinos (12 males and 6 females). Their age distribution is shown in Table 1 and obviously the albinos had a much lower average age than the normally pigmented patients.

Received 22 March 1993.

Accepted 19 August 1993.

From the Department of Surgery, Ahmadu Bello University Hospital, Zaria, Nigeria (both authors).

Correspondence to: Mr A. Yakubu, 61 Aston Avenue, Fallowfield, Manchester M14 7HL, England.

Table 2 shows the different tumour types observed. Squamous cell carcinoma predominated in both groups of patients. Basal cell carcinoma had a low frequency in both groups but seemed to be relatively more frequent in the albino group. There were no cases of malignant melanoma or Kaposi sarcoma among the albinos.

Table 3 illustrates the regional distribution of squamous cell carcinomas. In the normally pigmented patients the lower limbs were most commonly affected (55%) whereas in the albinos the head and neck region was the most frequent site (82%).

In the African albinos the tumours seemed to be more aggressive. Two of these patients had lesions both on the trunk and in the head and neck region. Some albino patients with only head and neck involvement had multiple tumours too.

Among the albino patients no predisposing factors, beside the albinism, could be found. This was in contrast with the normally pigmented Africans, among whom 28% of the tumours had developed in chronic ulcers, 16% in post-burn scars and 15% in scars of other etiology.

Discussion

In the first major survey of cancer in the northern savannah of Nigeria, Edington (Central Histopathology Laboratory, Zaria) reported a proportional frequency ratio for skin cancer, including Kaposi sarcoma and malignant melanoma of 11.4% at the Ahmadu Bello University

Table 1
Age distribution

Years	Non-albinos	Albinos
0-9	8	
10-19	29	3
20-29	87	10
30-39	147	3
40-49	181	2
50-59	161	
60-69	97	
> 70	28	
Unspecified	37	
Total	775	18

Table 2
Patients with skin cancer

	Non-albinos n (%)	Albinos n (%)
Squamous cell carcinoma	153 (66)	15 (83)
Malignant melanoma	150 (19)	—
Kaposi sarcoma	60 (8)	—
Basal cell carcinoma	16 (2)	3 (17)
Adnexal skin cancer	16 (2)	—
Dermatofibrosarcoma protubrans	20 (3)	—
Total	775 (100)	18 (100)

Table 3
Site distribution of squamous cell carcinoma

Site	Non-albinos	Albinos
Lower limb	284	—
Head and neck	153	14
Upper limb	22	—
Trunk	19	3
Perineum	20	—
Unspecified	15	—
Total	513	17

Hospital complex (1). The exact incidence of skin cancer in normally pigmented Africans and albinos is not known, but earlier observations have revealed the high susceptibility of African albinos to skin cancer, of both squamous cell and basal cell type (2, 3).

In albinos there is a defect in the synthesis of tyrosinase, which catalyses hydroxylation of the melanin precursor tyrosine to dioxyphenylalanine (4). As a consequence these persons lack the protective effect of melanin against ultraviolet radiation damage. The Nigerian albino is particularly predisposed to skin cancer, because of the proximity

of this country to the equator and consequently high intensity of ultraviolet light (5, 6).

Albino patients in the present study were much younger than normally pigmented skin cancer patients. This may be due to the underlying genetic abnormality. All the albinos had head and neck tumours and 2 patients also had trunk lesions. They had all had symptoms for less than 5 years, unlike normally pigmented patients, who often had longer histories. In albino patients the parts of the head and neck region exposed to sunlight seem to be the predominant sites affected. It is interesting to note the complete absence of leg involvement, despite the fact that all albino patients were exposed to the same environment hazards as normally pigmented patients. The rareness of lower limb skin cancer may be related with the fact that albino patients rarely live more than 30 years (5-7). As a consequence, leg ulcers and scars rarely become chronic enough for malignant transformation.

In the present study, the most common type of malignant skin tumour was squamous cell carcinoma, not basal cell carcinoma as in Caucasians. The explanation for this remains unclear. As in other reports from Africa, no cases of cutaneous melanoma or Kaposi sarcoma were seen in albinos (3, 6, 7).

In conclusion, the most common malignant skin tumour in the African albino is squamous cell carcinoma of the head and neck region. However, the proportion of basal cell carcinoma seems to be higher in albinos than among normally pigmented Africans. Due to the high risk of skin cancer, African albinos should be advised to wear protective clothing and head gear and seek indoor rather than outdoor occupations.

REFERENCES

1. Edington GM. The pattern of cancer in the northern savannah with special reference to primary liver carcinoma and Burkitt's lymphoma. *Nig Med J* 1980; 8: 281-8.
2. Oluwasanmi JO, William SO, Ali AF. Superficial cancer in Nigeria. *Br J Cancer* 1967; 23: 714-49.
3. Yakubu A. Superficial cancer in Zaria, Nigeria; An analysis of clinical presentation and predisposing factors. (Dissertation) FMCS (Nig). National Postgraduate Medical College of Nigeria, 1989.
4. Edington GM. Cancer of the skin. In: Edington GM, ed. *Pathology in the tropics*. London: Edward Arnold 1976: 702-9.
5. Okoro AN. Albinism in Nigeria. *Br J Dermatology* 1975; 92: 485-92.
6. Luande J, Henschke CI, Mohammed N. The Tanzanian human albino skin natural history. *Cancer* 1985; 55: 1823-8.
7. Kromberg JG, Castle D, Zwang EM, Jenkins J. Albinism and skin cancer in Southern Africa. *Clin Genet* 1989; 36: 43-52.