Acta Derm Venereol (Stockh) 1989; 69: 234–271

SHORT REPORTS

Racial Differences in Mole Proneness

FRANS H. J. RAMPEN[1] and PETER E. J. de WIT[2]

[1]*Department of Dermatology, Sint Anna Hospital, Oss, and* [2]*formerly Medical Student, University of Nijmegen, The Netherlands*

Mole counts were studied in relation to skin complexion in various racial groups. White children had a median total number of naevocytic naevi of 17.0, versus 2.5 in non-white children ($p<0.001$). Young white adults showed a similar mole proneness to that of coloured subjects (61.0 versus 16.0; $p<0.001$). With regard to moles >2 mm diameter in the young-adult group, white subjects again exhibited a higher median count than non-white subjects (5.5 versus 1.0; $p<0.001$). There was an inverse gradient of mole counts in young adults from subjects of white complexion through those of mixed ancestry, Oriental ancestry, to those of Negroid descent. This study indicates that there is a strong racial background predisposing to the development of naevocytic naevi. ***Key words: Naevocytic naevus; Skin complexion; Race.***

(Accepted September 26, 1988.)

Acta Derm Venereol (Stockh) 1989; 69: 234–236.

F. Rampen, Department of Dermatology, Sint Anna Hospital, J. Zwijsenlaan 121, 5342 BT Oss, The Netherlands.

The frequency of pigmented naevi in different populations is of special interest. Naevocytic naevi are important precursors to cutaneous melanoma. Remnants of pre-existing naevi may be observed histologically in 18–72% of cases (1). Remnants of dysplastic naevi have been reported in histologic contiguity with melanomas in over 20% of cases (2). Comparatively little is known about the aetiology of naevi. There is some evidence of a role for sunlight (3).

Hereditary factors such as skin complexion trait may also be related to the frequency of pigmented naevi (4, 5). Within Caucasian populations, naevus counts are highest in the light-skinned individuals. The frequency of moles in coloured races seems to be lower than that in Caucasians (5). Surprisingly, a comprehensive analysis of naevus counts in whites and non-whites has never been performed in the same investigation and by the same observers. This renders data from the literature concerning naevus counts in different races difficult to interpret. Therefore, we examined racial differences in the number of naevocytic naevi in children and young adults.

MATERIALS AND METHODS

Two school surveys were performed. Fourteen non-Caucasian children 7–13 years of age attending a primary school participated in the first part of the study. For each coloured child, 2 randomly selected Caucasian children of the same age and sex served as controls. All naevocytic naevi, regardless of size, were counted on the chest, back and legs. For practical reasons, naevus counts were restricted to these areas. Lesions were regarded as naevocytic naevi on clinical grounds if they showed a regular outline and if they had a tan or brown shade. Macular as well as raised lesions were included. Pigmentary lesions of dubious nature were omitted. The discrimination between freckles, lentigines and moles (or other pigmentary disturbances) can be difficult, especially in very small lesions. Therefore, naevi of all sizes and those of >2 mm diameter were analysed separately.

There were 4 Negroid children and 10 children of Oriental or mixed complexion. Children of pure Oriental ancestry (Mongoloid and Indian) and those of 'mixed' ancestry (i.e. Caucasian×Oriental or Negroid) were put combined, since the exact racial background of their parents was not always known to the children; the parents themselves were not examined.

Thirty-one coloured students 18–30 years of age participated in the second part of the study. For each case, 2 sex and age-matched white controls were randomly selected. Naevi were counted on the chest, back and legs. The coloured group was subdivided into pure Negroids ($n=12$), pure Orientals ($n=9$) and those of 'mixed' descent ($n=10$).

RESULTS

Both analyses revealed a higher total mole count in the Caucasian categories as compared with the corresponding coloured groups. Total mole counts in white children showed a median value of 17.0, vs. 2.5 in the coloured group ($p<0.001$; Wilcoxon test). The median total counts in the white vs. non-white students were 61.0 and 16.0, respectively ($p<0.001$). When analysing only naevi >2 mm diameter, median counts reached 5.5 for the Caucasian students, vs. 1.0 for the non-Caucasian students ($p<0.001$). In the children, the number of naevi >2 mm diameter was very low, which made separate analysis meaningless.

In both children and young-adults a steady decline was noted in the median number of moles from 'fair' to 'dark' skin complexion (Table I). For instance, the

Table I. *Naevus counts related to skin complexion in white and non-white children and young adults*

		Number of cases	Median number of naevi (range)
Children, all naevi			
Skin type[a]:	I–IV	28	17.0 (2–45)
	mixed + V	10	3.0 (0–12)
	VI	4	2.0 (1–3)
Adults, all naevi			
Skin type:	I–IV	62	61.0 (18–245)
	mixed	10	25.0 (11–91)
	V	9	13.0 (2–30)
	VI	12	8.5 (0–29)
Adults, naevi >2 mm			
Skin type:	I–IV	62	5.5 (0–63)
	mixed	10	2.5 (0–14)
	V	9	1.0 (0–3)
	VI	12	1.0 (0–4)

[a] Skin typing according to the Fitzpatrick classification: I–IV = Caucasian; V = Oriental; VI = Negroid.

median total mole count in white students was 61.0, in those of mixed ancestry 25.0, in true Orientals 13.0 and in Negroids 8.5. Small group sizes precluded meaningful statistical analysis. The gradients, however, were very consistent.

DISCUSSION

The present study indicates that non-whites have distinctly lower mole counts than whites. It is unlikely that total body counts (instead of chest, back and lower extremities) would lead to a different conclusion, since the majority of naevocytic naevi in men occur on the trunk and legs.

In our study, assessment of mole counts on the feet was omitted. Pigmented lesions on the palms and soles are common in coloured races (6). Histologically, these lesions show changes of lentigo simplex. This lentiginous pattern is quite different from the histological picture of naevocytic naevi on non-glabrous skin. It is probable that the mottled hyperpigmentations of plantar skin and naevocytic naevi are of an entirely different nature. Melanomas arising from these lesions (acral-lentiginous melanoma versus superficial spreading and nodular melanoma) can be distinguished from each other by their different clinical, epidemiological and histological profile. Investigations focusing on racial differences in the distribution of naevocytic precursors of melanoma should not confound true naevocytic naevi with other pigmentary lesions.

Surprisingly, no data exist comparing naevus counts between Caucasians and coloured people in one and the same investigation and by the same observer(s). In a first study in 1952, Pack and co-workers recorded the prevalence of moles in 1 000 adult white persons (7). They found an average of 14.6 moles per subject. In a second study by Pack's group, in 1963, the occurrence of naevi was described among people of various races (8). The latter study was performed in many countries all over the world and by different observers. This investigation revealed a paucity of naevi in people of Negro extraction (average 2.3). A greater concentration was found in Indians, Filipinos, Japanese and Chinese (average 16.4). Mestizo Indians of mixed white and Indian blood showed an average mole count of 26.0. These data illustrate a steady decline in average mole counts according to skin complexion ranging from people of mixed ancestry to those with a darker skin. Our findings are entirely in line with those results. The unexpectedly low average naevus counts in whites in Pack's first study cannot be compared with the findings of their second investigation due to different counting methods and observer bias.

Literature data dealing with mole counts in relation to skin phenotype hint strongly at an association between high naevus counts and light skin complexion (5). This applies to differences between complexion phenotypes within a given racial group as well as to racial differences. The present study is the first to indicate a relation between naevocytic naevi and phe-

notypic factors in a population of mixed racial background, including whites and non-whites. Naevus counts appear to be lowest in subjects with a dark constitutive skin colour and highest in those of Caucasian extraction. It is hypothesized that the propensity to develop moles is the most important denominator responsible for racial differences in melanoma risk, rather than the constitutive skin colour as such.

ACKNOWLEDGEMENT

The statistical analyses were performed by J. B. M. Boezeman.

REFERENCES

1. Elder DA, Green MH, Bondi EE, Clark WH. Acquired melanocytic nevi and melanoma. The dysplastic nevus syndrome. In: Ackerman AB, ed. Pathology of malignant melanoma. New York: Masson, 1981; 185–215.
2. Rhodes AR, Harrist TJ, Day CL, Mihm MC, Fitzpatrick TB, Sober AJ. Dysplastic melanocytic nevi in histologic association with 234 primary cutaneous melanomas. J Am Acad Dermatol 1983; 9: 563–574.
3. Kopf AW, Lazar M, Bart RS, Dubin N, Bromberg J. Prevalence of nevocytic nevi on lateral and medial aspects of arms. J Dermatol Surg Oncol 1978; 4: 153–158.
4. Rampen FJH, van der Meeren HLM, Boezeman JBM. Frequency of moles as a key to melanoma incidence? J Am Acad Dermatol 1986; 15: 1200–1203.
5. Rampen FJH. Nevocytic nevi and skin complexion. Dermatologica 1988; 176: 111–114.
6. Coleman WP, Gately LE, Krementz AB, Reed RJ, Krementz ET. Nevi, lentigines, and melanomas in blacks. Arch Dermatol 1980; 116: 548–551.
7. Pack GT, Lenson N, Gerber DM. Regional distribution of moles and melanomas. Arch Surg 1952; 65: 862–870.
8. Pack GT, Davis J, Oppenheim A. The relation of race and complexion to the incidence of moles and melanomas. Ann NY Acad Sci 1963; 100: 719–742.

Irritancy of Dithranol in Normally Pigmented and Depigmented Skin of Patients with Vitiligo

P. C. M. van de KERKHOF and H. J. FOKKINK

Department of Dermatology, University of Nijmegen, Nijmegen, The Netherlands

In order to ascertain the extent to which the pigmentary system plays a protective role in dithranol-induced irritancy, a within-subject comparison was carried out between normally pigmented and depigmented skin of patients with vitiligo. In open patch tests, various concentrations of dithranol in a cream base were applied to the normally pigmented and depigmented skin of 6 patients with vitiligo. The responses were assessed 48 h after application. A mild to moderate inflammation occurred in the pigmented and depigmented skin and no statistically significant difference was shown between the two test areas. The present study does not support the hypothesis that the pigmentary system might be involved in dithranol-induced irritancy. ***Key words: Melanin; Psoriasis.***

(Accepted October 31, 1988.)

Acta Derm Venereol (Stockh) 1989; 69: 236–238.

P. C. M. van de Kerkhof, Department of Dermatology, University of Nijmegen, Javastraat 104, 6524 MJ Nijmegen, The Netherlands.

Dithranol is a classical therapy for psoriasis (1). Free radical formation by auto-oxidation is responsible for the irritancy potential of this antipsoriatic drug (2). Melanin has been shown to constitute a free radical trapping system (3). Therefore it is attractive to hypothesize that the pigmentary system is of relevance with respect to the sensitivity to dithranol irritancy.

In order to find out to what extent the pigmentary system may play a protective role in dithranol-induced irritancy, a within-subject comparison was carried out in patients with vitiligo, by measuring the irritancy to dithranol in depigmented and normally pigmented sites.

PATIENTS AND METHODS

Six patients with vitiligo (3 males and 3 females, aged between 19 and 59 years) participated in this investigation. All patients had had vitiligo on 5–15% of their body surface for at least 5 years and 3 of them reported isomorphic responsiveness (Koebner positive). Patients were questioned regarding their responses to sunlight and were categorized into four different skin types according to the Boston classification (4). Four patients had skin type III, the other 2 skin type IV. At least for 6 months the patients had not used any topical therapy, including light therapy. One patient had an autoimmune thrombocytopenia, 1 patient had autoimmune hypothyreoidy and was treated with levothyroxin, another patient