

SHORT COMMUNICATION

Number, Distribution and Dermoscopic Pattern of Melanocytic Naevi in a Chinese Population

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A high number of melanocytic naevi is a risk factor for the development of melanoma in white populations (1). There have been many epidemiological studies of the number and distribution characteristics of melanocytic naevi in white populations since the 1980s (2). However, such studies are rare in Asian populations, especially in China. It is well-known that the incidence rate of cutaneous melanoma is much lower in Asian populations than in Caucasians (3). Furthermore, acral and mucosa melanoma, but not superficial spreading melanoma, are the most common melanoma in Asian populations. To further elucidate the number, distribution and dermoscopic pattern of melanocytic naevi on the body in a Chinese population, a cohort study was performed.

MATERIALS AND METHODS

This study was conducted in the Affiliated Hospital of Guiyang Medical College and Guizhou Cancer Hospital, Guiyang, Southwest China, which has an approximate average of 2.8 h sunshine per day (Longitude: 106.72; latitude: 26.57; altitude: 1,100 m; ultraviolet radiation: 0.153 J/m²). Ultraviolet radiation was calculated in this area, as described by Gong et al. (4). The current study was approved by the ethics committee of the Medical Faculty in Guiyang. All subjects (or their parents) provided written informed consent. Participants visiting these hospitals between July 2012 and December 2014 were examined, diagnosed with melanoma by clinical features and pathology, and the number and dermoscopic images (HEINE DELTA® 20 Dermatoskop, Heine Optotechnik GmbH & Co. KG, Hirsching, Germany) of naevi on the whole body, excluding the anogenital area, were recorded. Melanocytic naevi were defined as brown-to-black-pigmented macules and papules of any diameter (≥ 2 mm in general), that were darker in colour than the surrounding skin (5).

A questionnaire included items on demographics, Fitzpatrick skin type and elementary knowledge about melanocytic naevi and melanoma. Participants ≥ 18 years of age completed the questionnaire. The body-site of naevi was marked using a schematic body chart divided into 16 areas, as described by Synnerstad et al. (6). The research was performed by 3 experienced clinicians, who excluded lesions with clinical characteristic of lentigo, congenital giant naevi and seborrheic keratosis. Naevi dermoscopic types included those with a reticular, globular or homogeneous pattern; complex-type naevi were defined as having a combination of 2 patterns.

For each dermoscopic type of naevi within each of the age groups, percentages are provided as frequencies. The predominant dermoscopic type of naevi for each individual was more than 40% of all of that individual's naevi (7). The Wilcoxon rank-sum test (Mann–Whitney) was used for comparison between groups and the Kruskal–Wallis test for comparison of the numbers of naevi between more than 2 groups. Statistical significance was defined as $p < 0.05$.

RESULTS

A total of 3,513 naevi from 101 non-melanoma individuals was counted in this study (Table I). The number of naevi on each subject varied widely (1–137), with a median total body count of 30. Sex and age were factors in naevus development. Specifically, males had more naevi than females ($p < 0.05$), and had more naevi on the face (median 18.5) and chest (median 4.57) than females (median 10.4, 1.95, respectively) ($p < 0.05$). The population aged 21–40 years had more naevi than other age groups ($p < 0.05$). The count of naevi on the face (median 13.5) was more than on other sites ($p < 0.05$). This result confirms that sun exposure is a critical factor in naevus development. Furthermore, we observed that naevi dermoscopic patterns correlated with the age of subjects. Globular (42.1%) and homogeneous (29.2%) patterns were predominant in the youngest age group (0–10 years), whereas reticular (32.5%, 33.1%, 40.2%, 38.4%) and/or mixed (43.3%, 42.6%, 39.4%, 47.3%) patterns were more common in older individuals (11–50 years groups, respectively), and homogeneous (28.3%,

Table I. Characteristics of the study population (n = 112)

Subject	Non-melanoma (n = 101)		Melanoma (n = 11)	
	n (%)	Band range (medium)	n (%)	Band range (medium)
Sex				
Male	36 (35.6)	N	6 (54.5)	N
Female	65 (64.4)	N	5 (45.5)	N
Age				
0–10 years	14 (13.9)	2–10 (8.0)	0	N
11–20 years	18 (17.8)	11–20 (12.0)	0	N
21–30 years	29 (28.7)	21–30 (25.0)	0	N
31–40 years	26 (25.7)	31–40 (36.0)	1 (9.1)	39 (39.0)
41–50 years	6 (5.9)	41–45 (43.0)	1 (9.1)	46 (46.0)
>50 years	8 (7.9)	52–74 (58.0)	9 (81.8)	52–76 (61.5)
Naevi count				
Male	1,537 (43.8)	2–137 (37.5)	131 (52.4)	9–50 (16.5)
Female	1,976 (56.2)	1–111 (28.0)	119 (17.6)	7–51 (19.0)
0–10	177 (5.0)	2–31 (12.0)	0	N
11–20	603 (17.2)	6–86 (29.0)	0	N
21–30	1,140 (32.5)	1–111 (35.0)	0	N
31–40	1,252 (35.6)	16–137 (40.6)	31 (12.4)	31 (31.0)
41–50	193 (5.5)	8–57 (31.5)	19 (7.6)	19 (19.0)
>50	148 (4.2)	6–49 (13.5)	200 (80.0)	7–51 (14.0)
Exposure of anatomical site:				
Constant	1,649 (46.9)	0–62 (7.0)	119 (47.6)	1–41 (7.4)
Intermittent	1,378 (39.2)	0–30 (2.0)	96 (38.4)	0–26 (2.1)
Non-exposed	486 (13.8)	0–16 (2.0)	35 (14.0)	0–10 (1.8)

32.1%) and/or mixed (54.5%, 49.4%) patterns with hypopigmentation were more common in populations aged over 50 years. Our study of 11 melanoma patients (see Table I) revealed a predominance of acral lentiginous melanoma (72.7%); 2 superficial spreading and one nodular melanoma were also included. A pre-existing naevus was reported in 4 cases (36.4%). There was one melanoma sampled on a chronically UV-exposed site, and 7 on rarely UV-exposed sites.

There were no differences in melanocytic naevi count, distribution and dermoscopic pattern between patients with melanoma and non-melanoma individuals in the group aged over 50 years. Sixty-two complete questionnaires were collected. In participants ≥ 18 years old there was no difference in the number of melanocytic naevi between subjects with skin type III (25 subjects) and those with skin type IV (37 subjects) ($p > 0.05$). Approximately 34% (21/62) of participants did not know that naevi could develop into melanoma, and 40% (25/62) did not know that exposure to UV was a risk factor for development of naevi. Almost half (30/62) of subjects believed that malignant melanoma could be found by self-observation.

DISCUSSION

The present study assessed the number, distribution and dermoscopic pattern of melanocytic naevi in a Chinese population, who had black eyes, dark hair and light skin with a yellowish tint. Similar to some previous findings in white children and/or adults (7–9), this study found a wide range in the total number of naevi according to age and sex, and individual's predominant dermoscopic types of naevi differed across the age bands. Moreover, total naevi counts on the body increase with age from childhood to midlife, then decreased again to late adulthood. Males had more naevi than females in every age group. The total naevus counts (median 30) are relatively high compared with the results of previous studies in Caucasian populations (2, 5, 8). This may be due to differences in skin colour, sun exposure times and patterns, age groups studied, and definitions of naevi diameter in different studies.

Our study and previous data (10, 11) revealed that the anatomical distribution and clinical types of melanoma in Caucasians and Chinese populations are different. Interestingly, we found no clinical connections between naevi number and melanoma risk in the Chinese population, whereas trauma and friction appear to be the main triggers for malignant transformation in this population (12).

The age-related patterns of dermoscopy and naevi characteristics found here are similar to those found in Sweden by Karlsson et al. (9). However, our previous research demonstrated that the eumelanin level in Chinese normal skin and naevocytic naevi is significantly higher than that in Caucasians, whereas the opposite is true for

the pheomelanin level (13). Hence naevi in Chinese subjects tend to be dark brown, whereas in Caucasian subjects they are light brown with a reddish colour.

Many Chinese people lack basic knowledge about melanocytic naevi and melanoma; some subjects in this study did not know that UV exposure was a risk factor for naevi. Public education about naevi and melanoma should be improved, as, for example, it has been through educational programmes in some European and North American countries (14, 15).

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