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A Community Study of Male Androgenetic Alopecia in Bishan, Singapore

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ABSTRACT

Background: Androgenetic alopecia is the most common form of hair loss. It affects a large number of the local male population, with 1812 men seeking treatment for hair loss at the sole dermatological tertiary referral centre in Singapore in 1994. The aim of this study was to assess the prevalence of male androgenetic alopecia in the community.

Methods: A questionnaire-based cross-sectional survey with a one-stage sampling method was conducted. Each male was diagnosed clinically and the severity graded according to the Norwood Criteria. The survey area was in Bishan East, a housing estate with 8004 households. A total of 335 households were selected for the survey.

Results: The household response rate was 84%. Within these households, 254 out of 378 men participated in the study (67% response rate). The prevalence of androgenetic alopecia was found to be 63%. The prevalence of the condition increased with age, from 32% among young adults aged 17 to 26 years to 100% among those in their 80s. Proportionately more Indians (87%) were affected compared to Chinese (61%). 81% of the respondents with androgenetic alopecia did not seek help as they did not view it as a problem. Of those seeking treatment, 74% used non-medical methods of unproven effectiveness.

Conclusion: There is a high prevalence of androgenetic alopecia in the community in Singapore. Age specific prevalence and racial differences correlate well with both Western and local studies respectively.

Keywords: androgenetic alopecia, community prevalence, race, epidemiology

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INTRODUCTION

Hair loss is a common presenting complaint at the National Skin Centre, Singapore. In the year 1994, 1812 patients sought treatment for hair loss at the centre. The commonest cause of hair loss among the patients is androgenetic alopecia that accounted for 51% of the diagnoses[1].

As the local literature on androgenetic alopecia is limited, this project was carried out to determine the prevalence of the condition in the community. The ethnic group distribution of those affected and the severity of alopecia with relation to age were also areas of interest that have yet to be studied in Asian communities. The respondents' knowledge of androgenetic alopecia, their attitude towards the condition and the help-seeking behaviour of those affected with androgenetic alopecia were also studied.

METHODS

The study was a community based, cross-sectional study of the prevalence of androgenetic alopecia in males. The survey area was Bishan East housing estate, which has 96 blocks of flats with a total number of 8004 households.

The sample population consisted of all males 17 years and above who were resident in the housing estate. The age of 17 years was chosen as androgenetic alopecia becomes clinically apparent by this time in the normal male[2]. A total of 335 households were picked from the sample area with a one-stage random sampling method using EPISTAT. All eligible males within the households picked were interviewed.

The questionnaire was interviewer administered and was translated into Chinese and Malay for standardisation. Questions pertained to the personal profile of the interviewee, the diagnosis and grade of alopecia as assessed by the interviewer, the knowledge, attitudes, beliefs as well as the help-seeking behaviour of those affected.

The survey was conducted by 24 third-year medical students as their community health project in January 1996. For the prevalence, each case of androgenetic alopecia was diagnosed by the interviewer. All interviewers received training by a consultant dermatologist on the diagnosis and the severity grading according to the Norwood classification (Fig. 1)[3].

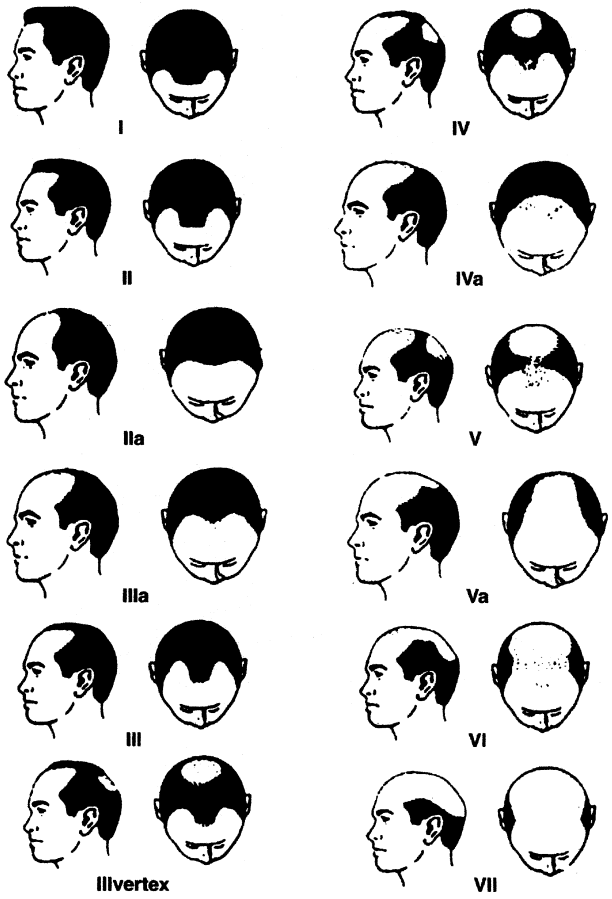

Fig. 1 Norwood's classification of Male Pattern Baldness[3].

Table I. Frequency distribution of grades of androgenetic alopecia in males aged 17 to 86 years.

Grade (Noorwood Criteria)	Frequency (%)
I	57 (35%)
II	44 (27%)
III	35 (22%)
IV	7 (4%)
V	10 (6%)
VI	4 (3%)
VII	4 (3%)
Total	161 (100%)

Table II. Age specific prevalence rates of androgenetic alopecia in males aged 17 to 86 years.

Age group (years)	No. of respondents	No. affected	Rate %
17-26	59	19	32%
27-36	55	38	69%
37-46	62	49	79%
47-56	46	33	72%
57-66	24	15	63%
67-76	5	4	80%
77-86	3	3	100%
Total	254	161	63%

A case was defined as a person with at least grade I of the Norwood classification.

SPSS for Windows Version 6 was used for data entry and analysis of the results.

RESULTS

Response rate

Three hundred and thirty-five households were sampled of which 281 households responded to the interview giving a household response rate of 83.9%. Within these households, a total of 378 men were found eligible for the study of which 254 responded to the interview giving a response rate of 67.2%. Seventy-six men could not be contacted after 3 tries on 3 separate occasions. 48 refused outright to be interviewed.

Socio-demographic data

The 254 men surveyed consisted of 85.4% Chinese, 7.9% Malays, 5.9% Indians and 0.8% men of other races.

Alopecia Prevalence

A total of 63% (95% confidence interval 58-69%) of the men were found to be suffering from at least Grade I androgenetic alopecia with 24% (95% confidence interval 18-29%) suffering from at least Grade III and above. The breakdown by grades of alopecia is shown in Table I. The prevalence rose from 32% among the young adults aged 17 to 26 years to 100% among those in their 80s (Table II).

DISCUSSION

Alopecia Prevalence

The point prevalence of androgenetic alopecia of men aged 17 and above in Bishan East housing estate was 63%. The age of 17 was chosen as androgenetic alopecia becomes clinically apparent by this time in the normal male[2]. This prevalence compares with a rate of 23%-87% quoted in studies of Western populations[4]. There is a high frequency of androgenetic alopecia in some Caucasian populations. A 1926 German study[5] found bitemporal recession in 62.5% of men aged 20-40.

There is a trend of rising prevalence with age as can be expected from what is known of the condition. It is a chronic condition that begins in the late teens and early twenties of those afflicted. In our study population, the prevalence rises from 32% among the young adults (17-26 years) to 100% among those in their 80s. This correlates well with western studies reporting an overall prevalence of common baldness among 47% of men

in the third, fourth and fifth decades[6] with an increase to about 80% among men in the seventh and eighth decades[4]. The figure of 32% is rather high for the young people in our population but this group usually has the lower grades of alopecia and many are unaware of their condition.

The results of our survey show 61% of the Chinese respondents having alopecia in contrast to the much higher 87% for the Indian respondents ($p<0.05$ using Fisher's Exact Probability Test).

Many Western studies have shown that there are racial as well as age-related differences in the incidence and pattern of hair loss in androgenetic alopecia[7]. It has been observed that advanced degrees of alopecia are more frequent and develop at an earlier age in Caucasian than in Mongolian populations[8]. The onset of androgenetic alopecia in the Japanese occurs one decade later than that in Caucasians[9]. A 1970 study reported that a full head of hair was 4 times more frequent in Negroes than Caucasians and evidence shows that Oriental and Native American men are more likely to have preservation of the frontal hairline, later onset of baldness and less extensive baldness[10,11]. It is also observed that African-American men may also have a lower rate and extent of baldness[12,13] with decreased frequency of fronto-parietal loss[14]. Although figures for American Indians and Eskimos are not available, it is agreed that these racial groups have the lowest occurrence of androgenetic alopecia[15]. This points prominently to there being a genetic link in the transmission of androgenetic alopecia.

Stratifying by race, there was a prevalence of 61% in the Chinese (133 out of 217 respondents), 65% in the Malays (13 out of 20) and 87% in the Indians (13 out of 15 respondents) (Table III).

Forty one per cent of the respondents diagnosed as having androgenetic alopecia reported having first degree relatives with the condition as opposed to 31% of respondents not diagnosed with androgenetic alopecia reporting similarly.

Table III. Ethnic Group Distribution of androgenetic alopecia in males aged 17 to 86 years.

Ethnic Group	Respondents	No. with Androgenetic Alopecia	% of affected respondents within each ethnic group
Chinese	217	133	61%
Malay	20	13	65%
Indian	15	13	87%
Others	2	2	100%
Total	254	161	63%

Knowledge and attitudes

On the assessment of the knowledge and attitudes of the sample population, only 41% had heard of male pattern baldness or androgenetic alopecia and some 24% saw this condition as an illness. A large percentage believed that natural aging (67%), stress (68%) and diet (56%) were important causative factors in the condition. While the condition may be socially unacceptable to some, it is not a disease in the medical sense of the word.

Although 81% of the respondents with androgenetic alopecia did not seek help as they did not view it as a problem, 74% of those who sought help turned to non-medical sources of treatment (e.g. herbs, hair centers, practitioners of traditional Chinese medicine). These persons are part of the larger population of people with androgenetic alopecia who spend thousands of dollars on such treatment, which have yet to be proven effective.

Such people would benefit from an educational program for the public with suggestions on the appropriate and effective help available (e.g. topical minoxidil[16] or oral finasteride[17]).

So far genetic inheritance has been the only factor shown to play an important role in the causation of androgenetic alopecia. Although more of the respondents diagnosed with alopecia report having relatives with the condition compared to those not suffering from the condition, the difference is not statistically significant. However, this might be explained by the incomplete penetrance of the autosomal condition[4] and also respondent bias. No conclusion can be drawn about etiology in this study.

LIMITATIONS

One limitation of the survey lies in the low statistical power as there are only 254 respondents. Ethnic differences in the prevalence of the condition can be more accurately determined with a larger sample size. There may also be difficulty in recognising grade I alopecia which forms up to 35% of all cases.

CONCLUSION

In conclusion, the survey shows a high prevalence (63%) of androgenetic alopecia in a population of men aged 17 and above living in a public housing estate in Bishan East. Both age-specific prevalence and racial differences correlate well with Western and local figures.

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