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Quality of Life Assessment in Male Patients with Androgenetic Alopecia

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Abstract

Background: Androgenetic alopecia (AGA) is characterized by progressive thinning of scalp hair defined by various patterns. Although there are no serious direct health consequences, the loss of scalp hair can be psychosocially distressing, thus it may significantly affect a variety of psychological and social aspects of one's life and the individual's overall quality of life (QoL). This cross-sectional study aimed to assess the QoL of male patients with AGA.

Methods: TA total of 176 clinically diagnosed cases of AGA with Hamilton-Norwood grade III and above presenting to Outpatient Department of Dermatology at B. P. Koirala Institute of Health Sciences, Dharan were enrolled in the study. Hair specific Skindex-29 was assessed in these patients.

Results: Among 176 patients, 120 (68.18%) had a grade III AGA and 56 (31.82%) had grade IV-VII AGA. One hundred and forty (79.55%) patients were aged < 35 years. Family history of AGA was present in 108 (61.36%) patients. Hair specific Skindex (mean ± SD (median)) in patients with androgenetic alopecia was 14.24 ± 18.29 (6.46). The emotional, symptomatic and functional scores (mean ± SD (median)) of patients were 20.3 ± 22.41 (12.0), 11.34 ± 14.69 (5.71), and 10.78 ± 17.79 (1.66) respectively.

Conclusion: Patients with androgenetic alopecia were affected emotionally more than symptomatically and functionally. It is important for health professionals to assess QoL in AGA patients to provide better and appropriate care.

Keywords: Androgenetic alopecia; Psychological distress; Quality of life

Declarations

Ethics approval and consent to participate: This study was conducted with prior ethical approval from Ethical Review Board, BPKIHS(Ref No.: Acd. 1046/069/070) and informed consent has been obtained from participants prior to the enrollment.

Consent for publication: Informed consent was obtained from the patient for the publication of identifying features along with the manuscript.

Availability of data and materials: The full data set supporting this research is available upon request by the readers.

Competing interest: None

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Androgenetic alopecia (AGA), a hereditary androgen-dependent disorder, is characterized by progressive thinning of the scalp hair defined by various patterns [1]. It is the most prevalent form of alopecia and is largely determined by genetic factors and the peripheral action of androgens [2]. The incidence and the severity of androgenetic alopecia tend to be the highest in White men, followed by Asians and African Americans, and the lowest in Native Americans and Eskimos. Almost all patients have an onset prior to age of 40, although, many of the patients (both male and female) show evidence of the disorder by age 30 [3, 4]. Universally, AGA is an extremely common disorder that affects roughly 50% of men and women older than 40 years [4]. The incidence of AGA is considered to be greater in males than females [5].

Although there is no serious direct health consequence, the loss of scalp hair can be psychosocially distressing [6], thus it may significantly affect a variety of psychological and social aspects of one's life and the individual's overall quality of life (QoL). QoL is defined as capacity to perform the daily activities appropriate to a person's age and his/ her major role in the society. Several indices are available in the form of questionnaires to measure the extent of disability caused by skin diseases [7]. Few studies have correlated clinically imperceptible hair loss with a decrease in QoL [8, 9]. There has been no such study in our community, addressing the patient's belief about AGA and how they relate it to QoL. This study aimed to assess the QoL among male AGA patients.

METHODS

In this descriptive cross sectional study, 176 clinically diagnosed cases of AGA with Hamilton-Norwood grade III and above presenting to Outpatient Department of Dermatology (OPD) at B. P. Koirala Institute of Health Sciences (BPKIHS), Dharan from April 2013 to March 2014 were enrolled. Patients not giving consent or not willing to participate, with severe seborrheic dermatitis, alopecia except androgenetic alopecia and scalp infections including scalp psoriasis were excluded. Patients taking drugs which can cause alopecia, such as corticosteroids, antihypertensives, anticonvulsants, vasodilators, bronchodilators, diuretics, spironolactone, β-receptor blockers, cyclosporine over the previous 6 months were also excluded. Ethical clearance was taken from the Institutional Review Committee, BPKIHS. A prior written informed consent was taken from each patient before enrollment. A detailed history with respect to the chief complaints, duration of illness, site of involvement, associated factors, past treatment and family history were documented in a preset proforma.

The diagnosis of AGA was based on clinical findings of the pattern of hair loss: pattern of increased hair thinning on fronto/ parietal scalp with greater hair density on occipital scalp, the presence of miniaturized hairs, and diversity of hair diameter (measured by trichoscopy). To classify the degree of AGA, the modified Hamilton-Norwood classification, a standard classification scheme with good test-retest reliability, was used. Androgenetic alopecia among men with cosmetically significant male pattern baldness was defined as type III or greater (types III [including IIIv and IIIa], IV [including IVa], V [including Va], VI, and VII) according to Norwood classification. The prevalence of more advanced degrees of alopecia characterized by only a remaining horseshoe fringe of hair (Norwood types V, Va, VI and VII) were also estimated [4, 10, 11]. QoL assessment was done using Hair Specific Skindex-29 used by Han et al. [12], in which words 'skin' and 'skin condition' on the Skindex-29 originally developed by Chren et al. were changed to 'scalp' or 'alopecia', respectively to assess its impact in life of affected individuals [13]. This questionnaire consisted of three scales: a symptom scale, an emotion scale, and a function scale, which consisted of 7 items, 10 items and 12 items respectively. Patients answered each question with a number ranging from 0 (never bothered) to 5 (always bothered). Answers to each item were transformed to a linear scale, ranging from 0 (never bothered) to 100 (always bothered). A scale score was the average score from the responded items and a global score was the mean of the sums of each scale. A high score (the scale score more than 50%) indicates severely impaired QoL, and a low score (the scale score less than 50%) indicates mildly impaired QoL.

The data were entered in Microsoft Excel 8 data sheet and statistical analyses were conducted with SPSS software (version 10.0 for Windows, SPSS Inc, Chicago, IL). The categorical variables were summarized in proportion and percentage. The continuous variables were summarized in mean and standard

deviation. Normality of data was assessed using the Kolmogorov- Smirnov Test. The associations between parameters were tested on the Spearman rank order correlation coefficient test. The Mann Whitney U test was used to assess correlation between the AGA and Hair Specific Skindex. A p value of < 0.05 was considered to be statistically significant.

RESULTS

Total of 176 clinically diagnosed AGA male patients were analyzed. There was no missing data. The mean age of AGA patients were 29.40 ± 8.74 years. Majority of the study population followed Hindu religion (92.61%). Sixty three (35.8%) were married, and most of the population belonged to middle class family (99.4%). One hundred (56.8%) patients lived non-sedentary life style. Majority of the patients (85.23%) had duration of alopecia ≤ 5 years (**Table 1**).

Table 1: Demographic and clinical characteristics (n = 176). Values are expressed as number (%).

Characteristics		Values
Age (years)	< 35	140 (79.54%)
	≥ 35	36 (20.46%)
Religion	Hindu	163 (92.61%)
	Others	13 (7.39%)
Social status	Middle class	175 (99.43%)
	High class	1 (0.57%)
Life Style	Sedentary	76 (43.18%)
	Non-sedentary	100 (56.82%)
Duration of Alopecia (years)	≤ 5	150 (85.23%)
	> 5	26 (14.77%)
Severity of Alopecia	N-H grade III	120 (68.18%)
	N-H grade IV-VII	56 (31.82%)

In this study, 120 (68.18%) patients had Grade III AGA, followed by Grade IV (21.02%), Grade V (8%), Grade VI (1.7%), and Grade VII (1.1%). Family history of AGA was present in 108 (61.36%) patients, with 44.8% of positive family history in the first degree relatives. Frontal area of scalp was found to be the commonest site of onset, observed in 138 (78.4%) patients, followed by vertex (30.1%) and temporal area (2.8%).

The global Hair Specific Skindex-29 had mean ± SD (median) score of 14.24 ± 18.29 (6.46) (**Table 2**). The patients in the study population were emotionally affected more and had mean emotional score of 20.3 ± 22.41 (12.0); mean symptomatic score of 11.34 ± 14.69 (5.71) and mean functional score of 10.78 ±17.79 (1.66).

On correlating between the variable and QoL in the symptom, function and emotion; patients of younger age (< 35 years) had increasing scores in symptom, function and emotion (p = 0.002, 0.005, and 0.026 respectively), which depicts the significant association between them. In contrast to the above findings, duration of AGA had no association with any of the variables. Also, the severity of alopecia had increasing scores on function and emotion (p = 0.002, and 0.006 respectively) (**Table 3**).

DISCUSSION

Male pattern baldness is a common, androgen dependent skin problem in adult men. Though the pathogenesis is not well understood, androgens are believed to act on the hair follicle via the mesenchyme-derived dermal papilla situated in the middle of the hair follicle bulb [14]. The prevalence of AGA increases steadily with advancing age.

Various tools have been widely reported to have been used for psychosocial consequences of alopecia such as, the Skindex-16, the Skindex-29, and the Dermatology Life Quality Index and the brief COPE. Among these tools, Reid et al. used the Skindex scale to measure the QoL of patients with hair loss and also demonstrated a relationship between hair loss and QoL using this scale [9]. They suggested the Hair Specific Skindex-29 as a variant tool of the Skindex-29 and can be used to evaluate the QoL of patients with alopecia.

In our study, age of AGA patients (mean ± SD) was 29.40 ± 8.74 years, which was a younger age group. This finding is in corroboration with the study done by Tahir et al [15], where the mean age of the patients was 29.01 ± 8.62 years. This could be due to the fact that in our society, the prime age of getting married is between 2nd and 3rd decade, an important reason to report early about their disease [15]. But these findings are in contrast to the study conducted by Cartwright et al., in which the mean age of the patients was 35 ± 10.7 years [16]. The difference may be due to racial and cultural variations in different parts of the world.

Although AGA is a benign medical condition, affected individuals experience great psycho-emotional

Table 2: Hair specific Skindex scores of Androgenetic alopecia patients (n = 176). Values are expressed as mean ± SD (median).

Hair specific skindex	Parameters	Score
Symptom	My scalp hurts My scalp burns or stings My scalp itches Water bothers my scalp (bathing, washing hands) My alopecia is irritated My scalp is sensitive My scalp bleeds	11.34 ± 14.69 (5.71)
Function	My alopecia affects how well I sleep My alopecia makes it hard to work or do hobbies My alopecia affects my social life I tend to stay home because of my alopecia My alopecia affects how close I can be with those I love I tend to do my things by myself because of my alopecia My alopecia makes showing affection difficult My alopecia affects my interactions with others My alopecia is a problem for the people I love My alopecia affects my desire to be with people My alopecia interferes with my sex life My alopecia makes me tired	10.78 ± 17.79 (1.66)
Emotion	I worry that my alopecia may be serious My alopecia makes me feel depressed I worry about getting scars from my alopecia I am ashamed of my alopecia I worry that my alopecia may get worse I am angry about my alopecia I am embarrassed by my alopecia I am frustrated by my alopecia I am humiliated by my alopecia I am annoyed by my alopecia	20.3 ± 22.41 (12.0)
Global		14.24 ± 18.29 (6.46)

Table 3: Hair specific Skindex-29 scores for symptom, function, and emotion according to various parameters (n = 176). Values are expressed as median (IQR).

Parameters		Symptom	p-value	Function	p-value	Emotion	p-value
Age (years)	< 35	11.42 (5.71 - 25.71)	0.002	13.33 (4.58– 33.33)	0.005	16 (8.0–44.0)	0.026
	≥ 35	5.71 (5.71-11.42)		3.33 (2.91–18.76)		12.0 (10.0–18.0)	
Duration of alopecia (years)	≤ 5	11.42 (5.71 - 25.71)	0.32	10.0 (3.33 –26.25)	0.94	116.0 (8.0 – 42.0)	0.42
	> 5	5.71 (5.0 –15.0)		11.66 (3.33– 34.58)		12.0 (8.5 – 38.5)	
Severity of Alopecia (AGA Grade)	III	8.57 (5.71–20.0)	0.39	10.0 (3.33 –24.16)	0.002	14.0 (8.0 – 30.6)	0.006
	IV-VII	11.42 (5.71 –25.71)		18.33 (3.33– 45.0)		20.0 (12.0 – 60.0)	

stress, often leading to a reduction of QoL and secondary morbidity. Some patients' suffering can reach a level where the burden of hair loss is comparable with that caused by many more severe chronic or life-threatening diseases [17, 18]. Psychosocial impact caused by AGA is quite a natural phenomenon especially in an image conscious modern society of today that plays a great role on retention of youthfulness, a concept reinforced on daily basis by the advertising media [19, 20].

In our study, the cases were emotionally affected more and had emotional mean score of 20.3, symptomatic impact with a mean score of 11.34 and functional mean score of 10.78 respectively. Similar to our findings, Sawant et al. reported emotions to be more affected in younger age group (15 - 25 years) [21]; however, in contrast to their findings, the young patients had worse functioning and symptoms scores too. Our finding was also in corroboration with the study done by Cash et al. [18], in which greater degree of psychological impact of hair loss among the younger men and those with earlier onset of hair loss were seen.

A significant association of emotion and severity of androgenetic alopecia was seen in this study. This finding is similar to the study done by Han et al. [12]. Physical appearance is extremely important to most young men, and early onset of hair loss can have negative effect on self-esteem and self-image. Low self-esteem makes it difficult to find a life partner and employment as well [12].

CONCLUSION

Patients with androgenetic alopecia were significantly emotionally affected which could lead to low self-esteem and low self-image in young men. It is important for health professionals to assess QoL in AGA patients to provide better and appropriate care. Further multicenter studies with larger sample sizes to study the QoL in patients of androgenetic alopecia are recommended.

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