



## Assessment of self medication practices among medical students in acne vulgaris and patterned baldness in a tertiary care hospital of north India

### KEYWORDS

Acne vulgaris, Self medication, Patterned baldness, Knowledge, Medical students.

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**ABSTRACT** *Objective: To assess the pattern of self medication among medical students in common dermatological conditions like acne vulgaris and patterned baldness.*

*Methods: This was an anonymous, questionnaire-based survey. A self-developed, pre-validated questionnaire was used. The medical and dental students (1st to 4th year) who came with the problem of acne vulgaris and patterned baldness in the outpatient of Dermatology department were included in the study. Pattern of self medication for acne vulgaris and patterned baldness of medical students was recorded for a period of two years starting from March 2013-March 2015.*

*Results: Out of the total 472 students, 51.5% were males and 48.5% were females. More than two-third (69.5%) of the students were between 20-21 years of age. Textbooks (32.4%) were the most common source of knowledge. The prevalence of acne vulgaris and patterned baldness was 55.9% and 44.1% respectively. More than half of the students of all years had correct knowledge about topical treatment for acne. Correct knowledge about topical treatment for acne was lower among males (56.8%) than females (58.1%). However, the correct knowledge about oral medicine for acne was higher among males (49.4%) compared to females (47.6%), the difference was statistically insignificant ( $p>0.05$ ). There was insignificant ( $p>0.05$ ) difference in the correct knowledge about use of strength of minoxidil lotion for patterned baldness and oral medicine for patterned baldness between male and females.*

*Conclusion: Self-medication for acne vulgaris and patterned baldness was fairly common among medical students. Right knowledge and proper awareness about the medications was lacking in majority of the students and hence appropriate education and guidance is necessary.*

### INTRODUCTION

Acne vulgaris is an inflammatory skin disease, usually occurring between the age of 11 and 30 years [1, 2]. Skin lesions characteristic of acne are blackheads as well as inflammatory lesions such as papules, pustules and cysts, which result in post-inflammatory hyperpigmentation and scarring. Changes are usually present on the facial skin and upper parts of the body. Disease pathogenesis includes a number of factors. These are excessive production of sebum by the sebaceous glands, the innate tendency to hyperkeratosis of hair follicles; also bacterial flora are involved [3, 4]. Higher incidence of acne vulgaris was reported in 16-20 years age group and females were more commonly affected [5]. Topical therapy is useful in mild and moderate acne, as monotherapy, in combination and also as maintenance therapy. Retinoids have been in use for more than 30 years. Topical retinoids target the micro-comedone—precursor lesion of acne. There is now consensus that topical retinoid should be used as the first-line therapy, alone or in combination, for mild-to-moderate inflammatory acne and is also a preferred agent for maintenance therapy.

Tretinoin, adapalene, tazarotene, isotretinoin, metretinide, retinaldehyde, and  $\beta$ -retinoyl glucuronide are currently available topical retinoids [6]. The most studied topical retinoids for acne treatment worldwide are tretinoin and adapalene [7]. There is no consensus about relative effi-

cacy of currently available topical retinoids (tretinoin, adapalene, tazarotene, and isotretinoin). The concentration and/or vehicle of any particular retinoid may impact tolerability [8].

There are two products with combination of clindamycin and tretinoin currently available. The first combination - clindamycin phosphate 1.2% and tretinoin 0.025% gel (CTG) was approved by the US Food and Drug Administration (FDA) for the treatment of acne vulgaris in patients 12 years and older in November 2006 (Ziana® Gel, Medicis Pharmaceutical Corporation, Scottsdale, AZ). Another CTG formulation had initially failed to get FDA approval in June 2005 because of concerns of dermal carcinogenicity in a single mouse model (Velac® Gel, Connetics Corporation, Palo Alto, CA). However, the CTG formulation was resubmitted and approved by the FDA in July 2010 (Veltin® Gel, Stiefel Laboratories Inc, NC) [9].

Many hair shaft disorders can produce hair shaft fragility, resulting in different patterns of alopecia [10]. Female pattern baldness is the most common type of hair loss in women [11]. Male pattern baldness is the most common type of alopecia and will affect 70% of males at some point in time [12]. Minoxidil, applied topically, is widely used for the treatment of hair loss. It is effective in promoting hair growth in both males and females with androgenic alopecia [13]. About 40% of men experience hair

re-growth after 3–6 months. Minoxidil must be used indefinitely for continued support of existing hair follicles and the maintenance of any re-growth [14, 15]. Treatments usually include a 5% concentration solution that is designed for men and a 2% concentration solution for women [16].

The present study was designed to assess the pattern of self medication among medical students in common dermatological conditions like acne vulgaris and patterned baldness.

## MATERIAL AND METHODS

This was an anonymous, questionnaire-based survey. A self-developed, pre-validated questionnaire was used. The medical students (1<sup>st</sup> to 4<sup>th</sup> year) who came with the problem of acne vulgaris and patterned baldness in the outpatient of Dermatology department were included in the study over a period of two years starting from March 2013 to March 2015. The pattern of self medication for acne vulgaris and patterned baldness of medical students was recorded. An informed consent was taken from each participant. The study was approved by the Ethical Committee of the Institute. A total of 472 medical students were included in the study. Only those medical students were included in the study who were practicing allopathic self medication. Drug naïve patients and those who were practicing other forms of therapy like homeopathy or ayurvedic treatment were excluded from the study. Correct knowledge for acne was considered as use of topical clindamycin or retinoid for grade 1 and 2 of acne and use of oral drugs like antibiotic and oral retinoid that is isotretinoin in grade 3 and 4 of acne. Correct knowledge for patterned baldness was considered as use of topical minoxidil 2% with or without oral biotin supplement in females and 5% in males alone with or without oral antiandrogen like finasteride or dutasteride.

## Statistical analysis

Data were analyzed statistically by simple proportions and the Chi-square test was used for the comparisons. The  $p$ -value < 0.05 was considered significant. All the analysis was carried out on SPSS 16.0 version (Chicago, Inc., USA).

## RESULTS

Out of the total 472 students, 51.5% were males and 48.5% were females. More than two-thirds (69.5%) of the students were between 20-21 years (Table-1).

About one third of the students had knowledge about the treatment of acne and patterned baldness from textbooks (32.4%) followed by friends (28.4%), coaching notes (25.6%) and internet (13.6%) (Fig.1).

Overall, the prevalence of acne vulgaris and patterned baldness was 55.9% and 44.1% respectively. Prevalence of acne vulgaris was lower among male students (40.5%) as compared to females (59.5%). However, patterned baldness was observed to be higher among the males (65.4%) than females (34.6%). This association was found to be statistically significant ( $p=0.0001$ ) (Table-2).

Table-3 shows the knowledge about self medication for the treatment of acne vulgaris and patterned baldness. More than half of the students of all years of admission (batches) had correct knowledge about topical treatment for acne, however, the difference was statistically not significant ( $p>0.05$ ). About one fourth (24.3%) of first year students, 53% of 2<sup>nd</sup> year, 54.4% of 3<sup>rd</sup> year and 60.9% of fourth year students had correct knowledge about oral medicine for

the treatment of acne, the difference was statistically insignificant ( $p>0.05$ ). Only 12.2% of the 1<sup>st</sup> year and more than half of the students of 2<sup>nd</sup> (53%), 3<sup>rd</sup> (60%) and 4<sup>th</sup> (61.7%) year students had correct knowledge about the strength of minoxidil lotion for patterned baldness, the difference was statistically significant ( $p=0.001$ ). There was significant difference in the correct knowledge about use of oral medicine for patterned baldness amongst students of different admission years.

Table-4 presents the correct knowledge about use of lotion and oral medicine for patterned baldness and acne. Correct knowledge about topical treatment for acne was lower among males (56.8%) than females (58.1%), the difference was statistically insignificant ( $p>0.05$ ). However, the correct knowledge about oral medicine for acne was higher among males (49.4%) compared to females (47.6%), the difference was statistically insignificant ( $p>0.05$ ). There was insignificant ( $p>0.05$ ) difference in the correct knowledge about use of strength of minoxidil lotion for patterned baldness and oral medicine for patterned baldness between male and females.

## DISCUSSION

The management of acne in its early stages is important for disease prognosis. Patients with acne usually present at the primary healthcare (PHC) centers during the early stages of their disease. Assessment of the current knowledge and practice of the physicians treating these patients is required. A study conducted among the doctors at PHC about the treatment of acne vulgaris revealed that 38.7% of doctors had a low level of knowledge, whereas only 11.3% had a high level of knowledge. Participating physicians indicated that the main causes of acne are (a) hormonal factors (58.5%), (b) infections (16.9%), and (c) genetic abnormalities (12%). Lack of sufficient knowledge of physicians reflected on their treatment practices; only one-third of them independently dealt with acne cases without referral and 23.9% referred the cases without medication. Physicians with a low level of knowledge showed six times more referrals than those with a high level of knowledge ( $P<0.001$ ; odds ratio: 6.0) [17].

Therapies available for acne include topical benzoyl peroxide, retinoids, and antibiotics, when used in combination they usually control mild to moderate acne. Systemic retinoids and antibiotics are generally reserved for severe acne. Other therapies available are oral contraceptives for female patients who do not respond sufficiently to the regular acne therapies and with premenstrual acne flares, spironolactone in severe nodulocystic acne and lasers and photodynamic therapies for inflammatory acne lesions [18].

The present study was conducted to assess knowledge about the treatment of acne vulgaris and patterned baldness among the undergraduate medical and dental students. The students who came for the treatment of acne vulgaris and patterned baldness in the outpatient were included in this study. The present study shows that self-medication was based on textbooks (32.4%) followed by friends (28.4%), coaching notes (25.6%) and internet (13.6%). Now-a-days, internet is emerging as a major source of information on health issues by providing required information [19].

In the present study, the prevalence of acne vulgaris and patterned baldness was 55.9% and 44.1% respectively. The prevalence of acne vulgaris was lower among male students (40.5%) compared to females (59.5%). In a study,

the prevalence of acne vulgaris was observed to be 63.3% among medical and paramedical students [20]. The increasing incidence of self medication has been documented throughout the world by large population based studies and national health surveys [21, 22].

More than half of the students of all the years of class had correct knowledge about topical treatment for acne in the present study. Jyothi et al (2013) [20] reported that only 38.82% medical and paramedical students had awareness about medications for acne vulgaris.

In the present study, the correct knowledge about topical treatment for acne was lower among males (56.8%) than females (58.1%). However, the correct knowledge about oral medicine for acne was higher among males (49.4%) compared to females (47.6%) in this study. In the present study, there was insignificant ( $p > 0.05$ ) difference in the correct knowledge about use of strength of minoxidil lotion for patterned baldness and oral medicine for patterned baldness between male and females.

James et al (2006) [23] observed that the 1<sup>st</sup> year medical students' knowledge about appropriate self-medication was poor, but knowledge of the benefits and risks of self-medication was adequate. The respondents found self-medication to be time-saving, economical, convenient and providing quick relief in common illnesses. Important disadvantages of self-medication mentioned were the risk of making a wrong diagnosis, inappropriate drug use and adverse effects. The majority (76.9%) of the respondents had

a positive attitude favoring self-medication. Self-medication was practiced by 44.8% of the subjects.

**CONCLUSION**

Self-medication for acne vulgaris and patterned baldness was fairly common among medical students. Adequate knowledge and proper awareness about the medications was lacking in majority of the subjects and hence appropriate education and guidance necessary to avoid irrational/inappropriate use of drugs.

**Table-1: Age and gender distribution of the subjects**

Age in years	Male		Female		Total	
	No.	%	No.	%	No.	%
18-19	38	43.2	61	56.8	88	18.6
20-21	158	48.2	54	51.8	328	69.5
≥22	47	83.9	63	16.1	56	11.9
Total	243	51.5	229	48.5	472	100.0

**Table-2: Gender distribution of acne vulgaris and patterned baldness**

Acne vulgaris and patterned baldness	No. of subjects		Male		Female	
	No.	%	No.	%	No.	%
Acne vulgaris	264	55.9	107	40.5	157	59.5
Patterned baldness	208	44.1	136	65.4	72	34.6

$p=0.0001$  (Chi-square test)

**Medication practices among medical students of acne vulgaris and patterned baldness in tertiary care hospital**

**Table-3: Knowledge about self medication for the treatment of acne vulgaris and patterned baldness**

Correct Knowledge about	Year of class								p-value <sup>1</sup>
	1 <sup>st</sup> year (n=115)		2 <sup>nd</sup> year (n=134)		3 <sup>rd</sup> year (n=90)		4 <sup>th</sup> year (n=133)		
	No.	%	No.	%	No.	%	No.	%	
<b>Topical treatment for acne</b>									
Yes	60	52.2	73	54.5	55	61.1	83	62.4	0.37
No	55	47.8	61	45.4	35	38.9	50	37.6	
<b>Oral medicine about acne</b>									
Yes	28	24.3	71	53.0	49	54.4	81	60.9	0.10
No	87	75.7	63	47.0	41	45.6	52	39.1	
<b>Strength of minoxidil lotion for patterned baldness</b>									
Yes	14	12.2	71	53.0	54	60.0	82	61.7	0.001*
No	101	87.8	63	47.0	36	40.0	51	38.3	
<b>Oral medicine for patterned baldness</b>									
Yes	17	14.8	81	27.0	55	61.1	85	63.9	0.001*
No	98	85.2	53	73.0	35	38.9	48	36.1	

<sup>1</sup>Chi-square test, \*Significant

**Table-4: Correct knowledge about use of lotion and oral medicine for patterned baldness and acne vulgaris**

Correct knowledge about	Male (n=243)		Female (n=229)		p-value <sup>1</sup>
	No.	%	No.	%	
<b>Topical treatment for acne</b>					
Yes	138	56.8	133	58.1	0.77
No	105	43.2	96	41.9	
<b>Oral medicine for acne</b>					
Yes	120	49.4	109	47.6	0.68
No	123	50.6	120	52.4	
<b>Correct use of strength of minoxidil lotion for patterned baldness</b>					
Yes	121	49.8	100	43.7	0.18
No	122	50.2	129	56.3	
<b>Oral medicine for patterned baldness</b>					
Yes	126	51.9	112	48.9	0.52
No	117	48.1	117	51.1	

<sup>1</sup>Chi-square test

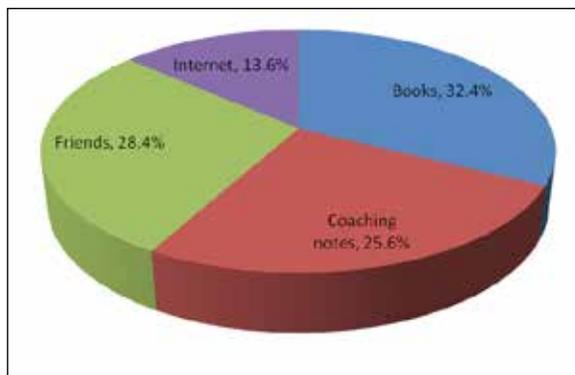


Fig. 1: Source of knowledge

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