Original Research Article

A cross sectional study to assess clinical profile of acne vulgaris presenting to a tertiary care teaching hospital

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Abstract

Background: Acne is one of the most commonly prevalent skin conditions. It commonly affects the adolescents and young adult age groups. The lesions start as microcomedones and progress to nodular or inflammatory acne with post inflammatory hyperpigmentation. Although acne is not life threatening it has multiple impacts in the affected individual's quality of life and psychological morale. Hence this study was undertaken to analyze the clinical profile of patients having acne vulgaris to facilitate better management.

Materials and methods: A cross sectional observational study was conducted among patients attending the dermatological outpatient department in a tertiary care hospital. A pre-tested semi-structured questionnaire was administered to the individuals after obtaining informed written consent. Data on demographical variables, menstrual history and clinical features of acne were collected and presented.

Results: A major proportion of the population was comprised of adolescents and young adults similar to previous studies. Around 13% of them had a positive family history of acne. Associated factors such as menstrual flare, increased consumption of dairy products and high glycemic index foods were also present. Almost 88% of the participants had mild acne. Half of them had post inflammatory hyperpigmentation.

Conclusions: Most patients of acne vulgaris are either adolescents or young adults. This group is more prone to endocrine co-morbidities such as polycystic ovarian syndrome and impairment in quality of life. Hence considering the above factors, early diagnosis and management of acne vulgaris

is essential. This is expected to yield better results in the long term in improving the quality of life in the affected persons.

Key words

Acne vulgaris, Adolescents, Skin diseases.

Introduction

Acne vulgaris is one of the most prevalent conditions which affect around 85% of population in the young adult age group according to the Global burden of disease study. According to some prevalence estimates, acne ranks among the most prevalent skin conditions around the world, surpassed only eczema, tumors and vascular lesions [1-3]. According to a review by Bhate K, et al. [4] (2013), moderate to severe acne affects around 20% of the young adults. The onset is usually with puberty. Certain races such as the Africans are more prone to post inflammatory hyperpigmentation. In 64% of the individuals, acne persists into their 20s, and 43% into their 30s. Among first degree relatives, 80% are affected by acne. In the recent years, the persistence of acne into late adolescence is a rising issue.

Acne is pathology of the pilosebaceous unit. It commonly begins in the face area. The disease has a spectrum of lesions and increasing severity. The presence of pustules is a classical lesion. But other lesions such as inflammatory papules and nodules are common as well. Micro-comedo is the primary lesion which is the precursor of all other lesions. Microcomedo is the impacting and swelling up of the follicle due to accumulation of sebum along with incompletely desquamated keratinocytes from the follicular epithelium. The microcomedone then increases in size and then are termed as open or closed comedones. Open comedone has a visible pore as a dark spot. Closed comedones appear as white bumps.

Thus the classification of acne is based on the morphology.

- Comedonal: Open and closed comedones
- Inflammatory: Papules and pustules
- Nodulocystic: Nodules and cysts

Bacterium such as propionibacterium may colonize such follicles. Among the individuals who are hypersensitive to this bacterium, inflammatory lesions arise from microcomedones. The consequent papules and pustules may either remain superficial or develop into deep scars depending on the degree of hypersensitivity developed. Even larger lesions >1cm in size are termed as nodules. Nodules in turn, may become abcesses. In advanced stages of the disease, true cysts, scars, keloids etc. may develop [5].

Acne has neither life threatening effects nor it is physically debilitating. But it has multiple adverse impacts on the affected individual's quality of life. The tendency to trivialize acne is against the effects it has on the individual's social and psychological functioning. Severe acne has been associated with depression, anxiety disorder and disruption of patients' lives [6]. But the quality of life is significantly affected even with there are only few comedones. Feeling of low self-esteem, difficulty in building personal relationships were reported by patients both by subjective and objective reporting of acne severity [7, 8]. Subjects even reported that acne affected their personalities permanently and adversely. Studies found a considerable psychological morbidity present over all age groups, especially adolescents [8, 9].

In addition to the psychological effects, acne vulgaris affects the Quality of life as well. The Dermatological Life Quality Index [10] and Children's Dermatological Life Quality Index [11, 12] are used to measure the quality of life among patients with skin disorders. Based on these two scales, patients with acne had a higher score, implying that the reduction in quality of life among acne patients is comparable to the

morbidity due to atopic dermatitis, eczema, psoriasis etc. [13].

Moreover, acne can be indicative of underlying hormonal imbalances as well. Excess production of hormones such as androgens, insulin, glucocorticoids etc. can lead to accelerated acne. Disorders such as polycystic ovarian syndrome, Cushing's syndrome, androgen secreting tumors can also have acne as one of their manifestations. Hence, the management of acne in these cases may necessitate correction of the underlying disorders [14].

In view of drug resistant propionibacterium causes of acne, the multifactorial etiology and the impact of acne on the individual's quality of life, early diagnosis and management of acne is essential. This will help a long way in the prevention of future complications as well and also an improvement in the individual's self-esteem. Hence this study seeks to assess the clinical profile of acne vulgaris patients for facilitating better management.

Objectives

- To assess the demographic and clinical profile of Acne Vulgaris cases presenting to a tertiary care teaching hospital. Clinical study of acne vulgaris of 100 patient attending Vinayaka Mission Kirupananda Variyar Medical College and Hospital, Salem, India.

Materials and methods

The study was a cross sectional observational study, conducted in the Department of Dermatology, Vinayaka Missions Kirupananda Variyar Medical College and Hospital, Salem.

The study population included all the women presenting to the study setting with clinical features suggestive of Acne vulgaris. The data collection for the study was done for a twelvemonth period from January 2017 to December 2017.

Both males and females in the age group of 5-25 years were included in the study. The study was approved by institutional ethical committee. Informed written consent was obtained from all the participants. Only those participants willing to provide consent were included in the study.

After obtaining the informed written consent, all the participants were evaluated by thorough clinical history concerning past history of risk factors for acne, menstrual history etc. Dermatological examination was conducted to assess the type of acne lesions, grade of acne etc. were noted. The presence of post acne sequel was also noted.

Statistical analysis was performed by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. Considering the descriptive nature of the study, no statistical test of association was performed in the study. Statistical analysis was done by IBM SPSS statistical software version 23.

Results

Among the study population 2(1.00%) was aged between 10 to 15 years, 160(80%) were aged between 16 to 25 years, 34(17%) were aged between 26 to 35 years and remaining 4(2%) were aged between 36 to 45 years. Among the study population 84(42%) participants were male and remaining 116(58%) were females. Among the study population 78(39%) people were students, 40(20%) were doctors, 32(16%) were nurse and lab technicians, 14(7%) were office staff, 4(2%) were lawyers, 2(1%) was house wife, 16(8%) were doing business and remaining 16(8%) were others (**Table – 1**).

Among the study population 26(13%) people had family history of risk factors. Among the study population 66(56%) had regular menstrual history, 2(2%) had irregular menstrual history. Among the study population 84(42%) had menstrual flair. Among the study population 34(17%) people were taking rice and rice

products, 40(20%) were taking frequent dairy products, 150 (75%) were taking hyperglycemic foods, 46(23%) were taking norm glycemic foods. Among the study population 54(27%) people had stress risk factor (**Table – 2**).

Table - 1: Descriptive analysis of Socio demographic parameters in study population (N=200).

Age group	**Frequency**	**%**
10-15 years	2	1.00%
16-25 years	160	80.00%
26 -35 years	34	17.00%
36-45 years	4	2.00%
Gender		
Male	84	42.00%
Female	116	58.00%
Occupation		
Student	78	39.00%
Doctor	40	20.00%
Nurse and Lab technicians	32	16.00%
Office staff	14	7.00%
Lawyer	4	2.00%
House wife	2	1.00%
Business	16	8.00%
Others	16	8.00%

Among the study population 16(8%) had seborrhea on face, 80(40%) had dandruff, 8(4%) had seborrhea/ Dandruff and 96(48%) had no associated disorders. Among the study population 148(74%) had no associated dermatological conditions, 6(3%) had AN, 38(19%) had hair loss, 8(4%) had Tinea versicol (**Table – 3**).

Among the study population 56(28%) people had duration of acne less than one year, 120(60%) had 1 to 5 years, 22(11%) had 11 to 15 years, 2(1%) have 16 to 20 years. Among the study population 32(16%) people had acne lesions present on cheeks, 42(21%) had on full face, 84(42%) had on fore head and cheeks, and remaining 42(21%) had on cheeks nose. Among the study population 88(44%) people were belong to grade I acne vulgaris, 88(44%) were belongs to grade II, 22(11%) were belongs to grade III and remaining 2(1%) was belongs to grade IV. Among the study population 176(88%) people belongs to mild grading of acne vulgaris, 22(11%) were belongs to moderate and remaining 2(1%) was belong to severe grade of acne vulgaris. Among the study population 158(79%) people had ice pick type of acne scars, 10(5%) had box type, 16(8%) people had rolling type, 2(1%) had keloid and remaining 6(3%) had mixed type of acne scars. Among the study population 100(50%) had post inflammatory hyperpigmentation (**Table – 4**).

Table - 2: Descriptive analysis of past history and risk factors in study population (N=200).

Family history	**Frequency**	**%**
Present	26	13.00%
Nil	174	87.00%
Menstrual history		
Not applicable	48	42.00%
Regular	66	56.00%
Irregular	2	2.00%
Menstrual flair		
Present	84	42.00%
Not applicable	112	56.00%
Absent	4	2.00%
Diet		
Rice and rice products	34	17.00%
Frequent dairy products	40	20.00%
Hyperglycemic foods	150	75.00%
Norm glycemic food	46	23.00%
Stress		
Present	54	27.00%
Nil	146	73.00%

Discussion

Majority of the study population is comprised of adolescents, but a lesser portion of young adults, similar to previous studies [1]. The study population had a slightly higher proportion of females. Since most of them were either young adults or adolescents, they were predominantly students. Lesser proportion of them was professionals or semi-professionals. Unlike previous studies, only 13% of them had a

positive family history of acne. This is contrast to Bhate K., et al. [4] (1976) where more than 80% of them had a first degree relative with acne vulgaris.

Table - 3: Descriptive analysis of associated conditions in study population (N=100).

Associated disorders	**Frequency**	**%**
Seborrhea on face	16	8.00%
Dandruff	80	40.00%
Seborrhea/Dandruff	8	4.00%
Nil	96	48.00%
Associated dermatological conditions		
Nil	148	74.00%
AN	6	3.00%
Hair loss	38	19.00%
Tinea Versicol	8	4.00%

Most of the affected females had regular menstrual cycles and a menstrual flare was reported. About a fifth of the participants reported consuming frequent dairy products and three-fourth had foods with high glycemic index. This is in concordance with evidence showing that low glycemic index diet can reduce the severity of acne [4]. Only a fourth of the participants reported experiencing significant stress. With regard to a descriptive analysis of the symptoms, half of the participants were symptomatic with seborrhea on face (8%), dandruff (40%) and both (4%). A lesser proportion of them had associated skin conditions such as hair loss and tinea versicolor.

A major proportion of the study participants had developed acne only within the past 5 years. Forehead and cheeks were the most common sites of occurrence of acne. There were 44% each in Grade I and II lesions. Mostly 88% were found to have mild acne. Comedones with papule were the most common clinical symptom in 88% of participants. Ice pick scars were present in 79% of participants. Post inflammatory hyperpigmentation was present in 50% of the participants.

Table - 4: Descriptive analysis of Clinical presentation and sequel of acne in study population (N=100).

Duration of acne	**Frequency**	**%**
Less than a year	56	28.00%
1-5 years	120	60.00%
6-11 years	22	11.00%
11-15 years	0	0.00%
16-20 years	2	1.00%
Site of acne lesions		
Cheeks	32	16.00%
Full face	42	21.00%
Fore head & cheeks	84	42.00%
Cheeks nose	42	21.00%
Grading of acne Vulgaris		
Grade I	88	44.00%
Grade II	88	44.00%
Grade III	22	11.00%
Grade IV	2	1.00%
Grading of acne Vulgaris		
Mild	176	88.00%
Moderate	22	11.00%
Severe	2	1.00%
Clinical features		
Comedones with papule	176	88.00%
Comedones, papule and Pustule	22	11.00%
Cyst and Nodule	2	1.00%
Acne scars		
Ice pick	158	79.00%
Box	10	5.00%
Rolling	16	8.00%
Keloid	2	1.00%
Mixed	6	3.00%
Post inflammatory hyperpigmentation		
Present	100	50.00%
Absent	100	50.00%

Conclusions

Hence, to conclude, the clinical profile of the study participants is found to be similar to other studies, with participants mostly having Grade I and II mild acne. Most of the patients belong to the adolescent and young adult age group. Associated factors such as increased

consumption of high glycemic index foods and dairy products are found among the study population as well. Even though the Grades of severity are less, this group is more prone to a significant reduction in the Quality of life and other psychological morbidities. The presence of other endocrine co-morbidities needs to be ruled out as well. Hence, considering the facts of the above clinical profile, early diagnosis and management of acne vulgaris has been found to be essential. This will be of great contributory value in improving the physical and the psychological quality of life among the affected individuals.

References

1. Johnson MT, Roberts J. Skin conditions and related need for medical care among persons 1-74 years. United States, 1971-1974. Vital and health statistics Series 11, Data from the national health survey, 1978; 212: i-v, 1-72.
2. Rea JN, Newhouse ML, Halil T. Skin disease in Lambeth. A community study of prevalence and use of medical care. British journal of preventive & social medicine, 1976; 30(2): 107-14.
3. Wolkenstein P, Grob JJ, Bastuji-Garin S, Ruszczynski S, Roujeau JC, Revuz J. French people and skin diseases: results of a survey using a representative sample. Archives of dermatology, 2003; 139(12): 1614-9.
4. Bhate K, Williams HC. Epidemiology of acne vulgaris. The British journal of dermatology, 2013; 168(3): 474-85.
5. Webster GF. Clinical Presentation of Acne. In: Zeichner J, editor. Acneiform Eruptions in Dermatology. New York, NY: Springer New York; 2014, p. 13-7.
6. Lynn DD, Umari T, Dunnick CA, Dellavalle RP. The epidemiology of acne vulgaris in late adolescence. Adolescent Health, Medicine and Therapeutics, 2016; 7: 13-25.
7. Hayashi N, Higaki Y, Kawamoto K, Kamo T, Shimizu S, Kawashima M. A cross-sectional analysis of quality of life in Japanese acne patients using the Japanese version of Skindex-16. The Journal of dermatology, 2004; 31(12): 971-6.
8. Abdel-Hafez K, Mahran AM, Hofny ER, Mohammed KA, Darweesh AM, Aal AA. The impact of acne vulgaris on the quality of life and psychologic status in patients from upper Egypt. International journal of dermatology, 2009; 48(3): 280-5.
9. Magin P, Adams J, Heading G, Pond D, Smith W. Psychological sequelae of acne vulgaris: results of a qualitative study. Canadian family physician Medecin de famille canadien, 2006; 52: 978-9.
10. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI)--a simple practical measure for routine clinical use. Clinical and experimental dermatology, 1994; 19(3): 210-6.
11. Lewis-Jones MS, Finlay AY. The Children's Dermatology Life Quality Index (CDLQI): initial validation and practical use. The British journal of dermatology, 1995; 132(6): 942-9.
12. Walker N, Lewis-Jones MS. Quality of life and acne in Scottish adolescent schoolchildren: use of the Children's Dermatology Life Quality Index (CDLQI) and the Cardiff Acne Disability Index (CADI). Journal of the European Academy of Dermatology and Venereology: JEADV, 2006; 20(1): 45-50.
13. Gupta MA, Gupta AK. Dissatisfaction with skin appearance among patients with eating disorders and non-clinical controls. The British journal of dermatology, 2001; 145(1): 110-3.
14. Lolis MS, Bowe WP, Shalita AR. Acne and systemic disease. The Medical clinics of North America, 2009; 93(6): 1161-81.