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ACNE VULGARIS: AN INSIGHT

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ABSTRACT: Context: Acne vulgaris, a very common malady of adolescents, is well known and easily recognized. Acne is a "polymorphic" disorder which exhibits series of widespread and diverse lesions. Four key factors have been identified in the etiology of acne: increased sebum production, follicular hyperkeratinization, colonization of the pilosebaceous unit with Propioni bacterium acnes and the production of inflammation. **Aims:** To observe demographic and clinical profile of acne vulgaris patients. **Settings and Design:** The present study was carried out in the dermatology, venereology and leprosy department of a tertiary care teaching hospital. It was a prospective and observational study. **Methods and Material:** The study was carried out over a period from Jan 2013 to Feb 2014. The study protocol, performa and other documents approved by IEC. **Statistical Analysis:** Data was recorded and analysed in Microsoft Excel 2007 spread sheet. **Results:** Majority of the patients were from 12-20 years of age group. Most of the patients were female, unmarried, students, educated up to secondary level and had pityriasis infection as most common co-morbid condition. Gradual onset of acne was commonly observed with itching as most common accompanying complaint and sunlight as a common precipitating factor. Cheeks was the most common location of acne and majority of them suffered from moderate grade of acne. **Conclusions:** Studies elaborating demographic and clinical profile of acne patients may lead to a pace of more successful treatment of this ailment. This could be a ray of hope to new promising modalities for acne patients.

INTRODUCTION: Acne vulgaris, a very common malady of adolescents, is well known and easily recognized [1]. Acne is a chronic inflammatory disease of the pilosebaceous units. The disease occurs in all races worldwide, affecting 90% of people sometime or other in their life. Person is more likely to develop acne than any other disease.

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More people have appointments with dermatologists for acne relief than for any other skin condition. It is very common to occur and hence often termed as physiologic in nature.

The disease causes significant morbidity and affects patients both physically and psychologically in terms of scarring, depression, anxiety and low self esteem. Acne is a "polymorphic" disorder which exhibits series of widespread and diverse lesions. Four key factors have been identified in the etiology of acne: increased sebum production, follicular hyperkeratinization, colonization of the pilosebaceous unit with Propioni bacterium acnes and the production of inflammation [2].

The clinical hallmark of acne vulgaris is the comedone, which may be closed (white head) or open (black head) [3]. There is paucity of Indian studies of acne vulgaris, thus this study was undertaken to illustrate demographic and clinical profile of such patients.

Aim and Objective:

1. To observe demographic profile of acne vulgaris patients.
2. To demonstrate varied clinical profile of acne patients.

MATERIALS AND METHODS: The study was a prospective and observational drug utilization study carried out in the dermatology, venereology and leprosy department of a tertiary care teaching hospital, Gujarat, India. The data was collected for 14 months from January 2013 to February 2014. The institutional ethics committee permission was taken to conduct this study (Date of approval 26/11/2012) (PDUMCR/IEC/25102/2012).

Inclusion Criteria:

- 12 to 40 yr of age of either sex.
- Patients with total count of lesions in between 2 to 30; inflammatory (papules and pustules) and or non-inflammatory (open or closed comedones) lesions over face.

Exclusion Criteria:

- Patient lost to follow up during the period of study.
- Subjects regularly using anti-acne medications in last 30 days before study entry.
- Patients with severe form of acne that is acne conglobate, acne fulminas or secondary acne.
- Pregnant women.

In this study total 1164 prescriptions were analyzed. Data was collected from patients and documented in predesigned case record form.

RESULTS: A total 404 patients with acne vulgaris were included in the study. As shown in **Table 1**, most common age group involved in acne was 12-20 yr. Mean age was 18.57 yr. There was female preponderance. Female to male ratio was 1.13:1. Most of them were unmarried.

TABLE 1: DISTRIBUTION OF PATIENTS ACCORDING TO AGE, GENDER AND MARITAL STATUS

	No. of patients (n = 404)	% of patients
Age (years)		
12 -20	253	63%
21 -30	125	31%
31 -40	24	6%
Gender		
Female	214	53%
Male	190	47%
Status		
Married	84	21%
Unmarried	320	79%

Table 2 shows educational status and occupation of study participants. Majority of the patients were having education up to secondary level and were student.

TABLE 2: DISTRIBUTION OF PATIENTS ACCORDING TO EDUCATION STATUS AND OCCUPATION

	No. of patients (n = 404)	% of patients
Education status		
Illiterate	22	5%
Primary	45	11%
Secondary	226	56%
Graduate	111	27%
Type of occupation		
Worker	108	27%
Non-worker	42	10%
Housewives	66	16%
Student	188	47%

138 of the total enrolled patients had co-morbid conditions. **Table 3** illustrate such conditions, pityriasis infection was the most common co-morbid condition associated with acne vulgaris.

TABLE 3: DISTRIBUTION OF THE PATIENTS ACCORDING TO CO-MORBID CONDITIONS

Name of the condition	No. of patients (n = 138)	% of patients
Pityriasis infection	42	30%
Seborrhoea	21	15%
Tinea infection	19	14%
Hyper-pigmentation	16	12%
Miscellaneous	40	29%

As shown in **Table 4**, most of the patients had gradual mode of onset of acne. 198 of the acne patients had various associated complaints. Itch was present in maximum number of the patients.

Table 5 shows sunlight was precipitating factor in majority of the patients.

TABLE 4: DISTRIBUTION OF THE PATIENTS ACCORDING TO THE MODE OF ONSET AND ACCOMPANYING COMPLAINTS

	No. of patients (n=404)	% of patients
Mode of onset		
Gradual	346	86%
Sudden	58	14%
Accompanying complaint		
Itch	158	80%
Pain	66	33%
Other	6	3%

TABLE 5: DISTRIBUTION OF THE PATIENTS ACCORDING TO PRECIPITATING FACTORS

Precipitating factor	No. of patients	% of patients
Sunlight	148	87%
Menstruation	19	11%
Diet	5	3%
Cosmetics	3	2%
Others	3	2%

As shown in **Table 6**, majority of the patients had involvement of face with more of the cheeks involvement in particular.

TABLE 6: DISTRIBUTION OF THE PATIENTS ACCORDING TO THE LOCATION OF THE ACNE LESIONS

Location	No. of patients	% of patients
Cheeks	320	79%
Forehead	240	59%
Chin	149	37%
Back	104	26%
Others	89	22%

Severity of acne can be graded on clinical grounds, **Table 7** shows that majority of the patients suffer from moderate grade of acne.

TABLE 7: DISTRIBUTION OF THE PATIENTS ACCORDING TO THE GRADE OF ACNE

Grade of acne	No. of patients (n = 404)	% of patients
Mild	89	22%
Moderate	261	65%
Severe	46	11%
Truncal acne	9	2%

DISCUSSION: Acne vulgaris was selected as it is a common dermatological problem. Acne is a chronic inflammatory disease of the pilosebaceous units [1]. Person is more likely to develop acne than any other disease. More people have appointments with dermatologists for acne relief than for any other skin condition. Mishra N *et al*., states acne vulgaris was the most common disorder comprises of 38.4% of all skin diseases followed by fungal and bacterial infection [4]. Similar results were found with Patel NG *et al*., (14%) [5] and Yuwnate AH *et al*., [6] (14.8%). Acne is an extremely complex disease with elements of pathogenesis involving defects in epidermal keratinization, androgen secretion, sebaceous function, bacterial growth, inflammation, and immunity [7]. Although many people dismiss acne vulgaris as an inconsequential disease of adolescent, there is often significant physical and psychological morbidity such as permanent scarring, poor self image and anxiety [8]. Due to the fact that the acne patient is unable to predict the duration or the severity of the condition, or the likelihood of a positive treatment outcome, even mild cases of acne can cause a great degree of stress, frustration, embarrassment, depression and anger [1].

The age of onset for acne is at puberty or a few months earlier. The peak incidence is between 14 to 17 years in women and 16 to 19 yr in men [1]. Teenage acne patients have higher levels of bacteria in their follicles than do age-matched controls. Although there is a good degree of overlap between acne and non-acne groups, in general, teenage acne patients have higher sebum production than their normal counterparts, accounting for their greater bacterial populations [7]. Usually incidence decreases after teens, but sometimes it may persists even after thirties.[1] As per **Table 1**, most common age group involved in our study was 12 - 20 yr with mean age of 18.57 yr. This is in consonance with other two studies first one done by Biswas S *et al*., in which acne occurs more frequently in age between 10 to 20 yr (75%) [9] and other one done by Kubaisy WA *et al*., in which mean age of acne patient come out to be 18.13 ± 0.59 [10].

Acne is more common and more severe in males than females, relating it to androgen activity.[1] Ikaraoha CI *et al*., stated female preponderance (75%) among acne patients [11]. Yuwnate *et al*., also reported female preponderance (56.7%) [6]. In other study done by Adityan B *et al*., majority of the patients were male (55%) [12].

In our study, 53% of patients were female with female male ratio as 1.13:1.

In our study, majority of the patients were unmarried, similar results were seen in other study done by Khondker *et al*., [13] in which total 74.3% patients were unmarried. A study done by Khondker L *et al*., specify majority of acne patients were educated upto secondary level (35.7%), this is in consonance with our study where most of the patients were educated upto secondary level. Most of the patients in our study were students which were comparable to previous study by Kumar S *et al*., [14] where 80% patients were students.

Patients with acne vulgaris usually suffer from other co-morbid conditions. Various co-morbid conditions seen during study period were pityriasis capitis, pityriasis versicolor, tinea infections, urtricaria, xerosis, apthous ulcer and intertigo. Pityriasis is a mild chronic superficial fungal infection of stratum corneum characterized by patchy and scaly discoloration of the skin. It is the most common pigmentary disorder worldwide. Pityriasis infection was most common co-morbid condition seen in our study. Whereas in a study conducted by Biswas S *et al*., [9] seborrheic dermatitis was the most common co-morbid condition. These differences might be due to different living conditions and hygiene level.

Most of the patients in our study showed gradual rather than sudden onset of acne vulgaris. In our study, most common accompanying complaint was itching for which they were receiving symptomatic topical treatment as calamine lotion. Similarly, another study done by Kumar S *et al*., [14] stated that most common antihistaminics prescribed was cetrizine. Patients and doctors alike accept that natural sunlight often improves acne, but there is no scientific evidence for this belief [2]. A recent systematic review examining the direct evidence for a positive effect of sunlight exposure on acne confirmed that evidence was lacking. Although there was some evidence to suggest that various spectra of artificial light may be beneficial and this could not be generalized to natural sunlight. In our study, sunlight was common precipitating factor in maximum number of patients, similar result was seen in study done by Biswas S *et al*., [9] in which acne worsened in sunlight in 28% of the patients. Acne is a polymorphic, inflammatory disease of the skin which occurs most commonly on the face (in 99% of cases) and to a lesser extent on the back (60%) and chest (15%) [2]. On the face it occurs most frequently on the cheeks, and to a lesser degree on the nose, forehead, and chin [15]. The distribution of active sebaceous glands and high bacterial populations are reasons for the varied distribution of acne lesions. The largest and most active sebaceous glands are located on the face, upper trunk, and arms, regions where acne is common. The majority of patients in present study had acne on face (Cheeks) which was also seen in previous two studies, Kubaisy WA *et al*., [10] and Khondker L *et al*., [13] Both of these studies specify 100% face involvement in acne patients.

Patients will typically have a variety of lesions in various states of formation and resolution [15]. Grading is a subjective method, which involves determining the severity of acne, based on observing the dominant lesions, evaluating the presence or absence of inflammation and estimating extent of involvement [16]. Grading acne is very important as it is important in finally choosing appropriate therapy among different available options. In present study maximum number of patients belonged to moderate grade of acne which was also seen in Biswas S *et al*., [9] (45%) and Khondker L *et al*., [13] (60%).

CONCLUSION: In nutshell, thorough studies elaborating demographic and clinical profile of acne patients may lead to a pace of more successful treatment of this ailment. This could be a ray of hope to new promising modalities for acne patients.

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