Clinico-epidemiological Features of Acne Vulgaris: A Tertiary Hospital-Based Study

Supreeti Biswas, MD[1]
Kanchan Kumar Mondal, MD[2]
Indranil Saha, MD[3]
Rathindra Nath Dutta, MD[4]
Saibendu Kumar Lahiri, MD[3]

1. Department of Pharmacology
2. Department of Ophthalmology
3. Department of Community Medicine
R. G. Kar Medical College, Kolkata – 700004, India.
4. Department of Dermatology, Institute of Post Graduate Medical Education & Research and SSKM Hospital, Kolkata – 700020, India.

Corresponding Author:
Supreeti Biswas, MD[1]
C-4, B-1, Swarnamahal Apartment
10/1, Mordecai Lane, Chhatakal
Dum Dum - 700074 , West Bengal, India.
Mobile Phone No: 9433295198
Email: supbswsmndl@yahoo.co.in

Abstract

Introduction: Acne vulgaris is a frequently encountered skin disease in daily practice. Its clinico-epidemiological status was evaluated in this study.

Methods: Four hundred patients were studied by record-based observation for 2 years in the Acne Clinic of a tertiary care hospital.

Results: This study revealed a male preponderance (53%) with a higher prevalence in adolescents (75%). Women with a regular menstrual cycle had a lower acne grading ($\rho = -0.31$). Increased physical activity led to a decrease in acne grading ($\rho = -0.20$). An association was found between acne and family history (42%) and non-vegetarian, oily, spicy fast food (99%). Our prescribed allopathic treatment in the Acne Clinic showed improvement. No drug induced ocular toxicity was observed. Hot, humid, dusty environment influenced the majority (87%) of the respondents. Urbanization (69%) increased the occurrence of acne.

Conclusion: Community based studies are required to find out the actual burden of acne vulgaris. *(Iran J Dermatol 2010;13: 37-41)*

Key words: acne, demography, epidemiology, treatment

Introduction

Acne vulgaris is one of the frequent inflammatory skin lesions encountered in daily practice. It may also manifest in non-inflammatory forms. Acne vulgaris is fairly common and affects 85%-100% of the population at some part of their lives. It is commonly found during adolescence and sometimes continues into adulthood [1]. Acne occurs when there is a change in the skin cell units known as pilosebaceous units that contain sebaceous glands, a substance called sebum, and a hair follicle. When oil or dead skin cells build up and clog these units, a breakout or lesion is likely to occur [1,2].

It is necessary to explore the burden of the disease in hospitals along with a clinical profile and treatment pattern from time to time. So, to evaluate the clinico-epidemiological status of acne vulgaris, a study was conducted in a tertiary care governmental teaching hospital in Kolkata, Eastern India.

Patients and Methods

This record-based longitudinal observational study was undertaken for a period of 2 years in the Acne Clinic situated at Institute of Post Graduate Medical Education & Research (IPGME&R) and SSKM Hospital, Kolkata, India. Necessary permissions were taken from the Institution as well as from the Dermatology Department. Altogether, 400 patients of acne vulgaris out of all symptomatic acne patients were consecutively enrolled in the Acne Clinic for one year. They formed the study population. Grading of acne vulgaris was done by a dermatologist as per standard grading system[1,2] (Table 1). Demographic profile, grading, different characteristics of the disease, contact history, living environment, food habits, previous treatment history, etc. were recorded in the out-patient tickets for them. All the parameters from those tickets available to the patients were copied in the predesigned and pretested Case Report Form (CRF), individually.

Modern allopathic treatment was initiated by our dermatologist in the clinic according to the grading of acne; Grade I – local topical antibiotic and face cleanser. Grade II – local topical antibiotic and systemic antibiotic. Grade III – systemic antibiotic, occasional local topical antibiotic and adjunctive therapy. Grade IV – systemic antibiotic and adjunctive therapy. Steroids, isotretinoin and vitamin A were prescribed as per need in Grade III and IV. Prescribed topical antibiotics were benzoyl peroxide, clindamycin, retinoic acid, adaferin and azeleic acid. Prescribed systemic antibiotics were tetracycline, doxycycline, minocycline, lincomycin, co-trimoxazole, ampicillin and cephalosporins. Antibiotics were prescribed either as a single agent or in combination as needed. Comedone expression, incision and drainage, intralesional steroid and cosmetic surgery were the adjunctive therapies. Details of prescription and treatment schedule were copied in the CRF. All the cases were followed up for one year after the therapy. Progressive physical and therapeutic evaluation was done. If needed, the prescribed regimen was changed during this follow-up period. Ophthalmological examination was performed before starting therapy as well as after completion of the therapy to elicit any sign of drug induced ocular toxicity. Treatment outcomes and appearance of any toxicity were also recorded in the CRF during the follow-up periods. All data from CRF were fed to Microsoft excel and analyzed accordingly. Rank order correlation co-efficient (ρ) was calculated between two continuous variables.

Results

Out of the 400 patients studied, 53% were males and 47% were females (M/F = 1.12/1). Mean age of the study group was 22.13 years (Table 2). Acne started between 10 to 20 years of age among 75% of the patients followed by 20 to 30 years of age in 18% (Table 3). Mean age of onset for males and females was 18.1 ± 6.8 and 18.3 ± 6.1 years, respectively, with no significant difference. The majority (65%) had acne only on face; while face along with other areas such as chest and shoulder comprised the second largest group (18%). The majority (45%) had the lesions for a duration of 2 to 5 years. Acne alone was present in 93% of the patients while the remaining 7% had associated skin lesions in addition to acne. Among the patients, 32%, 45%, 16% and 7% belonged to grade I, II, III and IV of acne vulgaris, respectively.

Table 1. Grading of Acne vulgaris.

| Grade | Type | Description | No. of lesions in one side of face | |
			Comedones	Papulo-pustules
I	Mild	Occasional papules	<10	<10
II	Moderate	Comedones, papules, few pustules	10 – 25	10 – 20
III	Severe	Predominant papules, nodules, abscess	25 – 50	20 – 30
IV	Cystic	Mainly cysts & abscess, wide spread scarring	>50	>30

Table 2. Distribution of the study subjects according to the age and sex. (N = 400)

Age (Years)	Male No. (%)	Female No. (%)	Total No. (%)
10 – 20	112 (52.8)	64 (34.0)	176 (44)
20 – 30	64 (30.2)	92 (48.9)	156 (39)
30 – 40	24 (11.3)	28 (14.9)	52 (13)
40 – 50	12 (5.7)	4 (2.2)	16 (4)
Total	212 (100)	188 (100)	400 (100)

Table 3. *Distribution of patients according to different characteristics. (N = 400)*

Variables	Number	Percentages (%)
Age of onset (years)		
10 – 20	300	75
20 – 30	72	18
30 – 40	20	5
40 – 50	8	2
Duration of disease (years)		
< 1	36	9
1 – 2	72	18
2 – 5	180	45
5 – 10	84	21
10 – 20	28	7
Duration of aggravation		
No aggravation	88	22
< 1 month	16	4
1 – 6 months	124	31
6 – 12 months	28	7
1 – 2 years	56	14
2 – 6 years	88	22

Among females, mean age of menarche was 13.1 years (range 10 – 15 years) and 85.1% (160/188) had regular menstrual cycles. A negative correlation [correlation coefficient (ρ) = − 0.31] was observed between regular menstrual cycle and grading i.e. women with regular menstrual bleeding had a lower skin lesion grading and vice versa. Dysmenorrhoea and premenstrual symptoms were present in 59.6% and 19.1% of females, respectively. Oral contraceptive pills were used by 4.3%. Hirsutism was noted in 6.4% of the females.

Family history of acne was positive in 42% of the respondents. Out of the 99% non-vegetarian patients, 9.1% did not consume extra oily food regularly. About 35% of the patients had related complaints such as constipation, acidity, dyspepsia or stress either in a single entity or in combination with other complaints. About 14% were addicted to tobacco (T), 2% were addicted to alcohol (A) and 7% were addicted to both. A sedentary lifestyle was noted in 62% of the participants. A negative correlation [correlation coefficient (ρ) = − 0.20] was observed between physical activity and grading i.e. increased physical activity led to a decrease in skin lesion grading. The majority of the respondents (87%) lived in hot, humid and dusty environments. Acne worsened in sunlight in 28% of the respondents; while 24% had history of contact with dust, cosmetics, oil and greasy base. Regarding residence, 55%, 31% and 14% were from urban, rural and sub-urban areas, respectively.

About 52% of the patients had received some sort of previous treatment. Among them, 82.7% had received allopathic treatment and the remaining 17.3% had received either homoeopathic (H) or ayurvedic (A) or combined H plus A therapy. Among the recipients of the previous treatment, no change was observed in 80.7% of the patients; while 11.6% of the patients had little improvement, but lesions worsened in 7.7% of the patients. Overall results of the present treatment according to grading in the Acne Clinic was satisfactory after the follow-up period of one year. No ocular toxicity was noted after completion of the prescribed treatment.

Discussion

The present study revealed a male preponderance (M: F ratio 1.12:1), as also observed by Adityan et al [3] (M:F ratio 1.25:1), while both Al-Ameer et al [4] and Ikaraoha et al [5] found a female preponderance (M:F=1:1.8). Overall mean age of the onset was 18.23 years, which is higher compared to findings of Adityan et al (15.97 years) [3]. The most common involved age group was 10 – 20 (44%), followed by 20 – 30 years (39%), as also observed by Adityan et al (59.8% in 16 – 20 years) [3]. Mean age of the onset in both sexes was almost equal (males: 18.1 ± 6.8, females: 18.3 ± 6.1 years) with no significant difference; while Al-Ameer et al, noted a significant

difference (p = 0.003) as females had an earlier onset (14.8 ± 3.9 vs. 16.3 ± 2.1 years) [4]. Mean age of the subjects in the present study were higher (22.13 years), compared to the study by Adityan et al, (19.78 years) in South India [3]. In the age group of 20–40 years, more female respondents reported acne as also observed by Adityan et al [3].

The present study revealed that face was involved in 97% of the cases, where face alone contributed to 65%. Similarly, the face was involved in all the patients, followed by back (28.2%) in the study of Adityan et al [3]. Family history was positive in 42% of the cases of the present study, while Xu et al, showed that the risk of acne vulgaris occurring in a relative of a patient was significantly greater than for the relative of an unaffected individual [6]. Adityan et al, noticed grade I acne as the most prevalent (grade I- 60.2%, grade II- 27.5%, grade III- 2.6%, grade IV- 9.7%),[3] while the present study identified Grade II as the most frequent one. In 7% of the acne cases, patients had other skin diseases, as also observed by Adityan et al, who noticed seborrheic dermatitis (21.35%) as the most common associated lesion [3]. In the present study, non-vegetarian, oily, spicy fast food influenced acne in 99% of the cases. No relationship was found between acne and tobacco and alcohol consumption or associated complaints.

In female patients, dysmenorrhoea and premenstrual symptoms were present in 59.6% and 19.1% of the cases, respectively. Hirsutism was present in 6.4% of the females. Adityan et al, found that 57.7% of the females had premenstrual flare and 12.4% had cutaneous markers of androgenicity [3]. A similar finding was also noted by Borgia F et al [7]. Similarly, 54% of the females indicated an increase in the severity of the disorder during their pre-menstrual period in a study by Ikaraoha et al [5].

The present study noted that most of the respondents (87%) lived in hot, humid and dusty environments and acne worsened in sunlight in 28% of the respondents. A similar observation was also noted by Adityan et al, showing a seasonal variation in 25.9% of the patients as symptoms exacerbated in 23% and 2.9% of the cases in the summer and in the winter, respectively [3]. This observation is against the conventional view that states acne vulgaris exacerbates in the winter and improves in the summer. In contrast, Al-Ameer observed a large number of patients during the cold months of the year (November to February) who often improved during the summer months [4]

and Ikaraoha et al, observed an increase in the severity during the rainy seasons in 64.9% of the acne patients [5]. In the present study, it was observed that urbanization influenced the occurrence of acne, as 55% and 14% of the patients were from urban and sub-urban areas, respectively. However, this observation has limitations; it was difficult for the distant rural people to have access to the Acne Clinic situated in the urban area.

The present study revealed that 82.7% received allopathic treatment and the remaining 17.3% received either homoeopathic (H) or ayurvedic (A) or combined H plus A therapy before attending the Acne Clinic. In 80.7% of the patients, no improvement was noted with previous treatments. However, a satisfactory result was observed in the follow-up period after our prescribed treatment in the Acne Clinic. A definite improvement was noted with the lowest aggravating rate in all grades of acne vulgaris in the present study. Suh et al, observed that treatments prescribed by dermatology clinics had the lowest aggravating rate, although improvement rates for family medicine clinics were also fairly high [8]. No drug-induced ocular toxicity was noted on periodical ophthalmological examinations in the present study. Few drugs like steroids, tretinoin, retinol and benzoyl peroxide are known to be oculo-toxic [9]. The vehicle of the topical agents may also be irritant to the eye.

This study brings out the clinical profile of acne vulgaris in a tertiary care hospital in Eastern India. Since this study was hospital-based, community-based studies with larger sample sizes are suggested to find out the actual burden of acne vulgaris in our community in the future

Acknowledgment

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