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Original Research Article

An epidemiological outline of acne vulgaris in non-obese patients at a tertiary care center in south India

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ABSTRACT

Background: A brief clinical vignette of the clinico-epidemiological data of acne vulgaris patients at a tertiary care center as the data seems particularly lacking in this field with respect to non-obese patients.
Methods: A total of 80 patients who were not obese and had no features of virilization attending the dermatology outpatient department at Sri Siddhartha medical college, Tumkur were enrolled in this descriptional study. A detailed questionnaire and proforma was utilized to record data pertaining to history and physical examination.
Results: A total of 55% (n=44) were males and 45% (n=36) were females and acne vulgaris was maximally seen in the 20-29 years age group, 60% (n=48). In this study 50% (n=40) of the study subjects were students, 22.5% (n=18) housewives.76.5% (n=61) subjects had presented with complaints of acne over the face. The 37% (n=30) subjects who presented had a duration of onset less than 6 months. All subjects had involvement of the cheek and 27.5% (n=22) had involvement of chest and back. Mild grade of acne vulgaris was observed in 72% (n=58), moderate grade in 23% (n=18), severe and very severe grade in 5% (n=4).
Conclusions: Acne vulgaris is one the most common dermatoses encountered by dermatologists. Any new information in the clinico-epidemiological aspects of this frequently met condition will help in preventive and management of acne vulgaris especially catering to the patient needs.

Keywords: Acne vulgaris, Adolescent acne, Grade of acne

INTRODUCTION

Acne vulgaris is a prolonged inflammatory disorder of the pilosebaceous unit. The presenting lesions are non-inflammatory comedones and/or papules, pustules and nodules of variable degrees of inflammation. Post-inflammatory macules, pigment changes and scarring frequently seen.[1] Face, back and/or chest are commonly affected sites. It is seen in all races and ethnicities. It is most prevalent during adolescence and onset is around puberty and has a chronic course with relapse.[2]

Well known pathogenetic factors of acne vulgaris include seborrhoea and hyperplasia of the sebaceous glands, altered keratinization and differentiation, inflammation and immune response and colonization of hair follicle by Propionibacterium acnes.[3]

The inflammatory lesions tend to be discomforting if painful. This chronicity of the disease associated with pain in addition to the visual component has presented acne vulgaris patients with significant psychosocial impact. These patients are more liable to discomfiture, depression, social withdrawal, anger and anxiety. So, though it is thought to be a fleeting disease of the teenage years its psychological impact has become much lengthier than the disease itself.[4] Not much epidemiological details are available regarding patients

who are not obese and do not have features of virilization. Our study aims to bring some clarity here.

METHODS

This descriptive study was carried out for one year from January 2020 to December 2020 and patients who had been diagnosed with acne vulgaris. Total of 80 patients were enrolled in the study and the study was conducted at department of dermatology, Sri Siddhartha medical college, Tumkur. An informed written consent was obtained. Demographic data regarding age when presented to outpatient department, sex, duration of disease, grade of acne vulgaris, drug history and family history were documented utilizing a comprehensive questionnaire and patient proforma. Grade of acne vulgaris was judged using the global acne grading system devised by Doshi A et al back in 1997. Patients above 15 years with all grades of acne vulgaris attending the outpatient department of dermatology, who were willing to participate in study from January, 2020 to December, 2020 were included. Patients with BMI ≥30 and clinical features of virilisation were excluded. Descriptive statistics was applied for socio-demographic variable. Categorical variable was expressed as frequencies and percentages.

RESULTS

A total number of 80 patients were studied of which 48 patients (60%) were seen in the age group of 20-29 years. The 30-39 years' age group showed the least with 8 patients (10%). The study showed slight male preponderance with male to female ratio of 1.2:1 (44 male and 36 female patients). As depicted in Figure 1 below a huge bulk of the patients were students, housewives and office job holders. They were 40 (50%), 18 (22.5%) and 11 (13.75%) in number. (clerks/office job holders, 7.5% (n=6) were manual laborers, 3.5% (n=3) business owners and 2.5% (n=2) nurses).

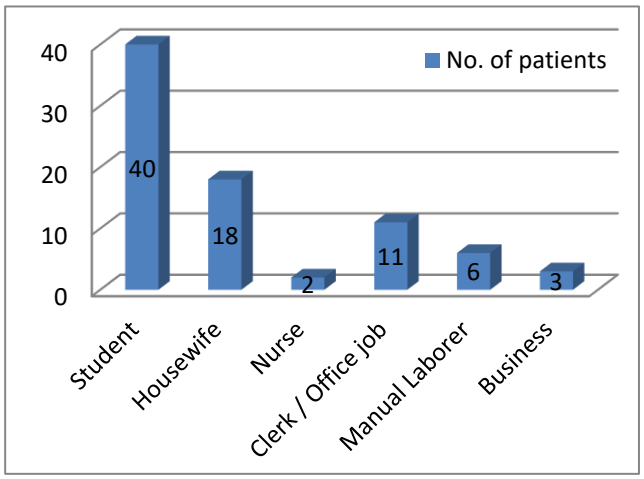

Figure 1: Distribution of study subjects based on occupation.

Majority of patients presented with complaints of red painful or non-painful bumps over the face accounting to 61 patients (76.25%). The maximum number of patients presented during less than a year of onset of acne lesions accounting for 52 (65%) cases as displayed in Table 1. The mean duration was 11.4±10.6 months. As presented in Table 2 below almost all the patients had forehead and cheek lesions and only 22 (27.5%) patients had chest and back lesions. As shown in Figure 2 below there is a predominant predilection for the facial site involvement and maximum number of cases presented with forehead and cheek lesions amounting to 26 (32.5%) and closely followed by face, chest and back lesions amounting to 20 (25%). Only one patient presented with acne only on the cheeks. Figure 3 represents gender variance against various grades of global acne grading system. Males (n=33) predominated females (n=25) in the mild grade of global acne grading system, while females (n=10) were observed more in the moderate grade of global acne grading system compared to males (n=8).

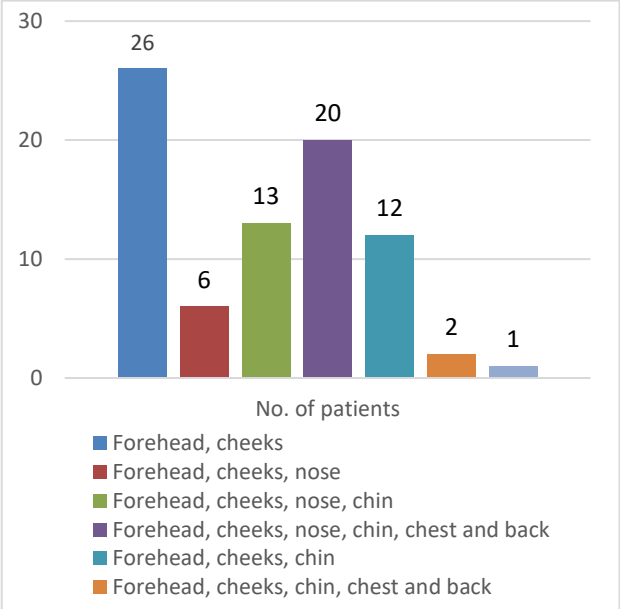

Figure 2: Distribution of site of presenting lesion against patient count.

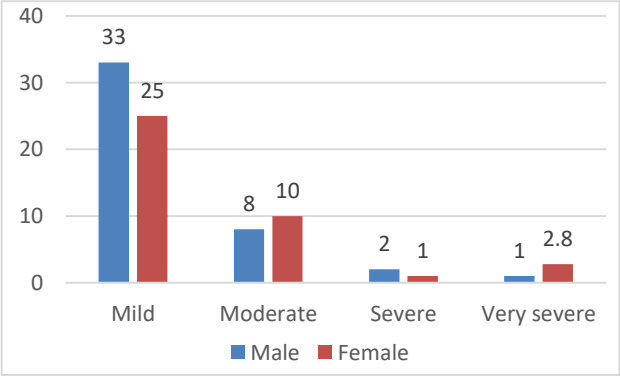

Figure 3: Depiction of different grades of acne vulgaris with gender differences.

Table 1: The duration of onset of lesions among various acne patients.

Duration of lesion (Months)	Frequency	Percentage (%)
<6	30	37
6 to <12	22	28
12 to<18	8	9
18 to <24	9	11
24 to <30	7	10
30 to <36	1	1
36 to <42	3	4
Total	80	100
Mean duration	11.4±10.6 months	

Table 2: Depiction of percentage of individual lesion against total patient count.

Site of lesion	Total patients	Percentage (%)
Forehead	79	98.75
Cheeks	80	100
Nose	39	48.75
Chin	47	58.75
Back and chest	22	27.5

DISCUSSION

Acne is a chronic inflammatory disease of the pilosebaceous unit, common dermatoses of concern in adolescence and adulthood.[3] There is an interaction amongst puberty, with its escalating androgen increasing production in the sebaceous glands, and the inhibited outflow of sebum from the gland to the skin surface; this inhibited outflow occurs from a hyper keratinization of the follicular epithelium in the pilosebaceous follicle and altering *P. acnes* growth.[1,5] The environmental and lifestyle factors like BMI, smoking, alcohol consumption, psychological stress, cosmetics, anabolic and androgenic steroids, seasonal factors and sleep disturbance affects solitary or mostly multiple coexisting confounding factors have shown weak coincidence for predisposition to acne.[1]

Newer studies have been able to point out the influence of diet on dermatology on hormonally controlled receptors of sebum production especially free fatty acids, sugars and fat which seem to influence the peroxisome Proliferator-activated receptor, insulin-like growth factor-I and leptin respectively. Leptin, a hormone produced within adipocytes that is a known connection to lipid metabolism with inflammation in various cells and regulation bodyweight. All the above-mentioned dietary factors are known to have significant varying impact on the body mass index (BMI), waist circumference and various components of the blood lipid profile.[4] Bakry et al comparative study on non-obese, non-hirsute, female adults with age and gender matched healthy volunteers showed statistically significant changes in hormone levels and lipid profile level and concluded the hormones and lipid profile must be considered in disease pathogenesis and its treatment.[6]

The combination of sequences in acne vulgaris seems to be influenced by several aspects which include immune-mediated mechanism, hormonal irregularities, and obesity, that eventually leads to the accentuation of the inflammatory response.[4,7] Hence a lot studies were motivated isolating this category of patients. Our aim was to look for any epidemiological patterns in those non-obese with no clinical features of virilisation as they too suffer from different grades of acne vulgaris including the more severe types.

Though in some studies it was found to be mostly women.[8,9] The male to female ratio is 1.2:1 in favor of men in our study and this corresponds to a study in 2009.[10] This could also be attributed to the fact that men are more outgoing in the area the study was conducted.

Among the various age groups in this study, it was seen that majority of the cases came under the 20-29 years age group equal to 60% (n=48) followed by the 10-19 years age group at 30% (n=24). While acne is certainly disease of adolescence the age changes seen in this study are similar to those depicted by Kane et al in his study.[11]

A total of 80 patients 58 (72%) had mild grade acne vulgaris (Figure 4), 18 (23%) had moderate grade acne (Figure 5), 4 (5%) had severe and very severe acne grades (Figure 6 and 7 respectively). In most other studies moderate grade was predominant.[8,12,13]

Figure 4: Clinical picture of mild grade of acne.

Figure 5: Clinical picture of moderate grade of acne.

Figure 6: Clinical picture of severe grade of acne.

Figure 7: Clinical picture of very severe grade of acne.

CONCLUSION

Acne vulgaris is a frequent diagnosis met by dermatologists everywhere. Non-obese patients are also sufferers of all grades of acne vulgaris. Any insight in the epidemiology can help better manage these patients and reduce the sequelae of acne vulgaris and improve quality of life.

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Ethical approval: The study was approved by the institutional ethics committee

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