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Original Research Article

A clinicoepidemiological study of adult acne

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ABSTRACT

Background: Acne vulgaris is a chronic inflammatory dermatosis of pilosebaceous unit. Adult acne is defined as presence of acne after the age of 25 years. Though acne vulgaris has been studied extensively, there is paucity of literature on adult acne.
Methods: A total of 150 patients with adult acne were enrolled in the study. A detailed history was taken followed by detailed dermatological examination. Ultrasonography abdomen and pelvis, hormonal evaluation was done in case of women with symptoms and signs of hyperandrogenism.
Results: Out of 150 patients studied, majority (61.3%) were in the age group of 26-30 years. The mean age of patients with adult acne was 30.1 years. Females (86%) outnumbered males. Majority of the patients (53.3%) had persistent adult acne and 46.7% had late onset acne. Exposure to sunlight (24%) was the most common aggravating factor followed by use of cosmetics in 19.3%. Menstruation was causing flare up of acne in 72 (55.8%) female patients. Face was involved in all the patients. Cheek was the most common site involved followed by forehead. Post acne scarring was present in 46.6% of the patients. Majority of the patients (67.3%) had grade 2 acne. Symptoms and signs of hyperandrogenism were present in 14 female patients.
Conclusions: Adult acne is more common in females. Persistent acne is more common than late onset acne. Patients with persistent adult acne are more prone to develop nodulocystic acne and acne scars.

Keywords: Acne vulgaris, Adult acne, Persistent adult acne, Late onset adult acne

INTRODUCTION

Acne vulgaris is one of the most common skin disorders worldwide and occurs primarily at puberty with a prevalence of more than 85%.[1] It is commonly viewed as a disorder of adolescence, however of late the prevalence of acne in adults is increasing.[2] Adult acne is defined as the presence of acne beyond the age of 25 years. There are two types of adult acne persistent acne and late-onset acne. Adolescent acne persisting beyond the age of 25 years is called persistent adult acne (80%). Acne developing for the first time after the age of 25 years is called late-onset adult acne (20%). Adult acne is seen predominantly in females (M:F=1:4.6).[3] Adult acne clinically manifests as inflammatory papulopustules of mild to moderate severity, commonly affecting the jaw line, chin, neck (the 'U' zone). Comedones and cysts are rare.[4] Moreover, scarring is quite common in adult acne.[3] Acne can cause significant negative psychosocial effect.[4] In recent years, though there is emerging evidence of increased prevalence of adult acne, there is paucity of medical literature on the clinico-epidemiological aspects

of adult acne especially in Indian population.[2] Hence we took up this study to assess the clinicoepidemiological profile of adult acne.

METHODS

The study was conducted over a period of 18 months from December 2015 to May 2017. Patients over the age of 25 years presenting with acne to the outpatient Department of Dermatology, venereolgy and leprosy at Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, Nagamangala taluk, Mandya district, Karnataka, were included in the study after an informed consent and ethical committee approval. A detailed history was taken as per the prepared questionnaire with emphasis on age of onset, duration, extent, sites of involvement, aggravating factors like stress, cosmetics, seasonal variation, sun exposure, premenstrual flare, intake of high glycemic food prior to the flare up. Family history of acne, gynecological and obstetric history was taken followed by elaborate general and systemic examination and was recorded in standard proforma. A detailed dermatological examination of each patient was done with emphasis on morphology, distribution and severity of acne. Acne vulgaris was graded as follows:

Grade 1

Comedones, occasional papules.

Grade 2

Papules, comedones, few pustules.

Grade 3

Predominantly pustules, nodules, abscesses.

Grade 4

Mainly cysts, abscesses, widespread scarring.

Ultrasonography abdomen and pelvis, hormonal evaluation including serum levels of total testosterone, dehydroepiandrosterone (DHEA), follicle stimulating hormone (FSH), luteinizing hormone (LH) and prolactin were done in case of women with a history of irregular menstrual cycle, hirsutism, obesity, hair loss and nodulocystic acne. Results were analyzed by simple statistical means of percentage and proportions.

RESULTS

A total of 150 patients with adult acne were studied. Of the 23000 adult patients aged >25 years who attended Dermatology outpatient department during the study period, 150 patients had adult acne. The most common age group of presentation was between 26-30 years. Proportion of patients in different age group is as in Table 1.

Table 1: Age group of patients with adult acne (n=150).

Age group (in years)	Frequency	%
26-30	92	61.3
31-35	33	22.0
36-40	15	10.0
>40	10	6.8

The mean age of patients with adult acne was 30.1 years with standard deviation (SD) 4.6 years. Males constituted 14% and females constituted 86% with male to female ratio of 1: 6.1. The most common age group of presentation in male and female was 26–30 years with age of onset being 21-25 years in majority. Proportion of patients in different age of onset is as in Table 2.

Table 2: Age of onset of lesions in patients with adult acne (n=150).

Age of onset (in years)	Frequency	%
<15	4	2.7
16-20	16	10.7
21-25	60	40.0
26-30	46	30.7
31-35	12	8.0
36-40	9	6.0
>40	3	2

The duration of acne ranged from 1 month to 16 years with a mean of 3.8 years. Majority (53.3%) of the study subjects had persistent adult acne and 46.7% of subjects had late onset adult acne. Majority of the patients (56.7%) were asymptomatic. 15.3% patients had only itching and both itching and pain in 4% patients. In the present study exposure to sunlight was the most common aggravating factor present in 24% patients followed by usage of cosmetics in 19.3% patients, stress (16.6%) and excessive sweating in 15.3% of the patients as depicted in Figure 1.

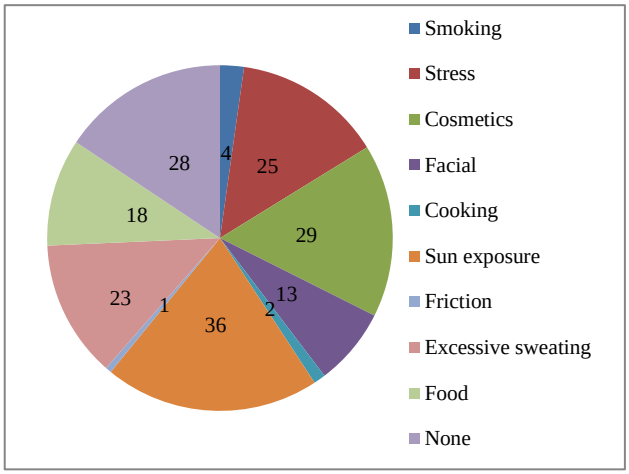

Figure 1: Aggravating factors in patients with adult acne (n=150).

Aggravating factors in our study are given in Figure 1.

Majority (51.9%) had worsening of acne in the premenstrual period, 3.1% during their menses and 0.7% had aggravation in post menstrual period. Seasonal variation was observed in 25.4% patients. Majority had aggravation of acne in summer (20.7%), followed by rainy (4.7%) season.

In the present study 22% of patients gave positive family history. Among these, majority (14%) had similar history in their siblings. Face was involved in all the patients with adult acne. In majority (82%) of the patients, face was exclusively involved, followed by face and back in 5.3% patients. Comedones were predominantly distributed on forehead (74.6%), followed by cheeks (72.6%), chin and mandibular area in 25.3% of the patients. Inflammatory lesions were predominantly distributed on cheeks (93.3%), followed by forehead (51.3%), chin (39.3%), and mandibular area in 28% of the patients. Post acne scarring was seen in 46.6% of the patients. Scars were predominantly distributed on cheeks (49.3%). Majority of the patients with persistent adult acne had predominant involvement of forehead (71%) followed by cheeks (68%), chin (27.5%), mandibular area (26%). Grade 2 acne was present in majority of the patients (67.3%) (Figure 2).

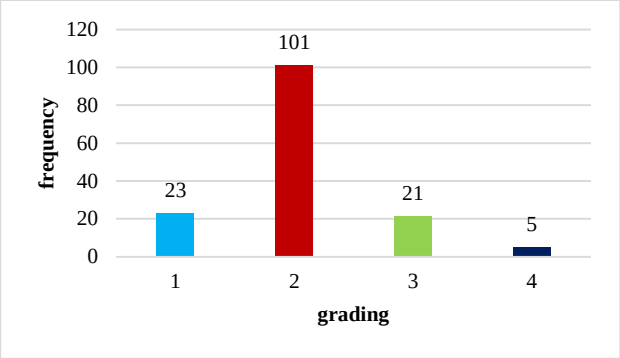

Figure 2: Acne grading in patients with adult acne (n=150).

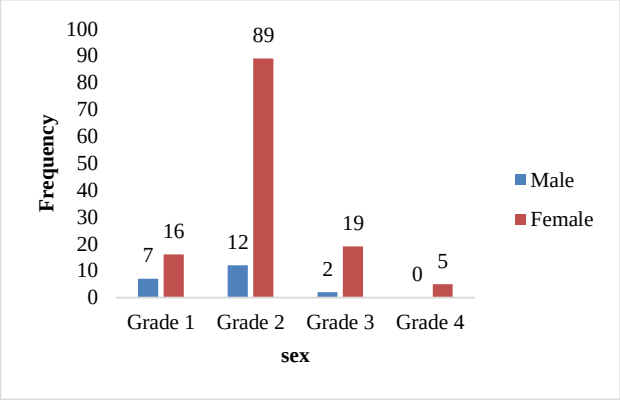

Figure 3: Correlation of grades of acne and sex in adult acne patients.

In both males (57.1%) and females (68.9%), the most common acne grade was 2 followed by grade 3 in 14.7% females and grade 1 in 33.3% males (Figure 3). Grade 2 was the most common acne grade in both persistent (62.5%) and late onset (72.8%) adult acne. Nodulocystic acne and acne scars (grade 3 and grade 4 acne) were more common in persistent adult acne than in late onset acne. There was statistically significant difference between grades of acne and type of acne (p=0.02). Majority of the patients (94%) had no associated condition. In the present study, only 4.7% of patients had hirsutism alone, followed by both alopecia and hirsutism in 1.3% patients. Out of 129 female patients, 14 women with symptoms and signs of hyperandrogenism were investigated, 10 patients were diagnosed with polycystic ovary syndrome (PCOD) and the rest had normal finding in ultrasonography of abdomen and pelvis, serum total testosterone level was raised in 1 patient, LH was raised in 1 and prolactin was raised in 1 patient. Serum DHEA level and FSH levels were not deranged in any patient.

Table 3: Correlation of type of adult acne and grade in adult acne patients (n=150).

		Type of adult acne		Total
		Persistent	Late onset	
Acne grade	1	8	15	23
	2	50	51	101
	3	17	4	21
	4	5	0	5
Total		80	70	150

DISCUSSION

Acne vulgaris is considered as a disorder of adolescence. However in recent past the incidence of adult acne has significantly increased. Adult acne can be divided into two types. Persistent acne (adolescent acne persisting beyond the age of 25 years) and late-onset acne (acne developing for the first time after the age of 25 years). In our study 53.3% of the patients had persistent adult acne and 46.7% had late onset acne, which is comparable with studies done by Poli et al, Khunger et al, and Goulden et al.[3,5,6] We found majority (61.3%) of the patients were between 26-30 years with mean age of patients was 30.1 years which was comparable with the study done by Khunger et al, (30.5 years).[3] Although the prevalence of acne significantly declines after the age of 40 years, in our study 6.8% of the patients had acne beyond the age of 40 years. In the present study the most common age group of presentation was 26-30 years in both the sex which is comparable with the study done by Khunger et al, (26-30 years).[3] Adult acne is more common in females, similarly in the our study females outnumbered males (male: female=1:6.1) which is comparable with studies done by Goulden et al (1:3.1) and Khunger et al (1:4.6).[3,6] This may be attributed to increased cosmetic consciousness, in women seeking treatment as compared to men. The mean age of onset of persistent adult acne

was 22 years, where as in late onset adult acne was 32 years. Persistent adult acne was more common than late onset acne in both males and females. In the present study duration of acne was ranging from 1 month to 16 years, in a similar study done by Khunger et al duration was ranging from 2 weeks to 30 years.[3] Majority (56.7%) of the patients were asymptomatic. However 23 (15.3%) patients complained of only itching, in contrary, study by Tanghetti et al majority (>90%) complained of redness (erythema).[7] Acne vulgaris is a multifactorial disease of pilosebaceous units, the causes of adult acne still not clear (remains to be elucidated). The increased androgen levels may contribute to increase in acne. However the relationship between circulating androgens and severity of acne is not proven and locally produced androgen and end organ hypersensitivity may be contributory factor in adult acne.[8,9] In our study 22% patients had positive family history. Factors which can aggravate adult acne are smoking, menstruation, psychological stress, cosmetics, sun exposure, medications (proandrogenic progestins, oral contraceptive pills, benzodiazepines, lithium, topical and systemic steroids, isoniazide, ramipril, ciclosporin).[10] In our study aggravation of acne due to exposure to sunlight was present in majority (24%) of the patients followed by cosmetics in (19.3%). This finding is comparable with the study done by Khunger et al who found sun exposure as aggravating factor in 33.2% of the patients and cosmetics in 14.3% of the patients.[3] However in studies done by Poli et al, Goulden et al and Tanghetti et al majority of the patients reported stress as an aggravating factor.[5-7]

In our study 55.8% of the female patients had menstruation as an aggravating factor which is comparable with the study done by Tanghetti et al, and Geller et al.[7,11] In the present study 25.4% of the subjects gave history of seasonal variation, majority (20.7%) gave history of exacerbation in summer (20.7%) which was comparable with similar study done by Khunger et al, (36%).[3] In the present study facial involvement was seen in all the patients and face (82%) alone was involved in majority followed by face and back in 5.3% of the patients. Adult acne is predominantly inflammatory compared to adolescent acne. Similarly in our study, predominantly inflammatory lesion were present in 84.7% while 15.3% of the patients had principally non-inflamed lesions which is comparable with studies done by Khunger et al, and Goulden et al.[3,6] Though in literature its mentioned that adult acne is predominantly distributed on jaw line, chin, neck (the 'U' zone), in our study, the lesions were predominantly distributed on cheeks (95.3%) followed by forehead (85.3%), chin (44%) and mandibular area. In the present study majority of the patients had inflammatory papular acne (grade 2) and this was the most common acne grade in both persistent and late onset adult acne (Table 3). We found that, in terms of severity majority of adult acne patients had grade 2 acne. However the more severe grades i.e., grade 3 and 4 were more prevalent among patients with persistent type of adult acne compared to late onset adult acne. This is probably because of the patients with persistent acne suffer the disease process for a prolonged duration of time starting from adolescents continuing through adulthood. Khunger et al, however did not find any difference in severity between persistent and late onset acne patients, although he also found that grade 2 acne was the most common grade overall.[3]

Associated conditions such as hirsutism were observed in 4.7% and 1.3% of the patients had both alopecia and hirsutism, which is comparable with the result of study done by Khunger et al.[3] In the present study out of 14 patients investigated, 10 patients favored PCOD, serum total testosterone, LH, prolactin was raised in 1, Serum DHEA and FSH were not deranged in any of the patients. In contrast to study by Darley et al, 26% of the patient had raised testosterone level and 45% had raised serum prolactin level.[12]

Post acne scarring is common in adult acne. We found that the predominant type of acne scar was pigmented macular scars (46.6%), followed by icepick (18.6%), rolling (8.6%) and boxcar (2.6%) scars. Our results were comparable with study done by Khunger et al, in which majority of the patients had pigmented scars (44.3%), followed by ice pick (28.6%).[3] As discussed earlier acne scars were found to be more prevalent among patients with persistent adult acne, probably because of long duration of disease in the individual.

CONCLUSION

Unlike adolescent acne which is more common in males, adult acne is more common in females, occurring more commonly in the age group of 26-30 years. Persistent acne is more common than late onset acne. Most patients have inflammatory grade-2 acne. Exposure to sunlight and cosmetics are the most common aggravating factor. Predominant site of involvement was cheeks followed by forehead. Facial scarring was present in 46.6% of patients and among these patients post inflammatory hyperpigmentation was the most common type of post acne scar. Patients with persistent acne are more prone to develop nodulocystic acne and acne scars.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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