Factors Affecting Acne

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Abstract

Acne vulgaris is a common chronic skin disease involving blockage and /or inflammation of pilosevaceous unit(hair follicles and their accompanying sebaceous gland)Acne can present as non-inflammatory lesions, inflammatory lesions, or a mixture of both, affecting mostly the face but also the back and chest

We studied the pattern of Acne in 110 patients with the sex ratio of 50 %(55) male and 50 %(55) female. The age ranged from 13-47 years, the study design was descriptive case series, the study was carried out in Nangarhar University Teaching Hospital and clinics from November 2018 to June 2019 and assessed patients' perceptions of factors having effect on their acne condition. Family history of acne was positive in 61% of patients, sweating, hot weather and emotional stress were known as aggravating factors by both sexes and premenstrual factors and cosmetics were confined to women. certain foods such as nuts , chocolate ,egg ,cakes and biscuits, spices and tea were known as exacerbator factors , finally we concluded that common aggravating factors are genetic ,nuts ,oily food, chocolate, spice ,cosmetic material , hot weather, milk, yogurt, tea and coffee and bettering factors are vegetables and fruits, and the acne is the disease of adolescence specially affecting those aging 13-20 year. The moderate type of acne was the most common type while the sever type was the less common type.

Key Words: Acne Vulgaris, aggravating factors, late onset, Persistent.

Introduction:

Acne is a chronic inflammatory disease of the pilosebaceous unit. (17)It is one of the most common skin disorders worldwide and occurs primarily at puberty with prevalence of almost 95%(5)

Acne characterized by seborrhea, the formation of open and closed comedones , erythematose papules, and pustules and in more severe cases nodule, deep pustules and pseudocytes.(17)It is a multi-factorial disease depending on genetic predisposition, endocrine factors, follicular epidermal hyper proliferation ,excess sebum production ,inflammation ,the colonization and activity of propionibacterium acnes, and environmental factors(12)

The etiology and pathogenesis of acne are multi – factorial , including increased sebum production]3,6-9] , abnormal follicular differentiation [14,31], propionibacterium   acne infection [14,31,18,29], inflammatory mediators [14,31,29,6], immunological status [29,15] and

genetic and hormonal factors [7,8,27-20] . many other factors might be considered as contributing factors to acne prevalence and severity including : physiological factors such as the menstrual cycle, , pregnancy and anxiety and depression [7-24,26,25 and external factors such as hot and humid weather, lack of skin cleanliness, cosmetics, mechanical skin irritation from excessive washing, diet and smoking [28,7,21-23].

Material and Methods:

Study was carried out in Nangarhar University Teaching Hospital and private clinics from November 2018 to jun 2019 on 110 patients the age range of cases was from 13 – 47 among 50% male and 50% female patients.

The source population for the study includes patients with acne. Information available include: age, sex, age of onset of acne, family history, diet, stress, body weight, consumption of fruits and vegetables,

Each patient was examined and the severity of their acne was graded based on the global acne grading system (GAGS) [23, 9]. This system considers 6 locations on the face, chest and upper back, with a factor for each location based roughly on the affected surface area, distribution and density of pilosebaceus units. Each grade was calculated as the sum of the local scores for the face, chest und upper back. To be consistent, acne grading was performed by only one researcher. Skin character (normal, oily or dry) was also recorded for all patients.

Results

The age of acne patients who were included in this study ranged from 13 – 47 years, while the range of body weight was from 38 – 103 kg. The age and weight of female patients were lower than those of males as shown in table1. The age at onset of acne ranged from 13 – 25 years for both sexes, but female patients developed acne at an earlier age than males: 13.8 years versus 14.9 years. Late – onset acne (acne that developed after age 21 years) was noticed only in 5

Table 1 age and weight analysis of acne patients

Variable	Males (n=55)	Females (n=55)
Age range(years)	14 – 42	13 – 34
Weight rang (kg)	42 – 110	42 – 95
Age at acne onset (%)		
13 – 20 years	96.4	95.5
$\geq 21 \ years$	3.6	4.5

N = total number of patients

Table 2 severity of acne and skin characteristics of acne patients

Variable	Males (n = 55)	Female (n = 55)	Total (n =110)
Severity of acne			
Severe	12.0	8.0	10.0
Moderate	23	25.0	24
Mild	20	22.0	21
Skin type			
Dry	1.8	1.4	1.6
Normal	6.6	4.4	5.5
Oily	91.6	94.0	92.8

n = total number of patients.

Females and in 4 male, 4.5% and 3.6 % of the cases respectively (table 1) .The duration of acne ranged from 1 month to 10 years. A family history of acne was present in 61 % of acne patients. Seborrhea (oily skin) was found in 91.7% of acne patients and the percentage of oily skin in females was higher than in male acne patients (Table 2). In addition, all patients with the severe grade of acne were found have seborrhea. The percentage of normal skin was 5.5% in acne patients and very few patients with acne had dry skin (1.6%).

Acne patients were divided in to 3 groups according to the severity of their acne condition using the GAGS system. Overall, 42acne patients (38.2%) had mild acne, 48 (43.6%) had moderate acne and 20(18.2%) had severe acne. (Table 2) . The face was the common site of acne in mild and moderate grades, while the upper back and the chest were the common sites in the severe grade of acne. Comedones, papule and pustules were distributed over all their areas, but nodules were seen on the back and the chest more than the face.

Many factors were mentioned by acne patients as aggravating their acne condition. Emotional factors such as stress and worry were mentioned by 69% of acne patients. Also, exposure to sunlight and excessive hear during summer time were believed to aggravate acne in 50% of patients. Two –thirds of patients (65.7%) stated that their acne became better during winter time. (table 3).

Among dietary factors, most acne patients believed that their acne was exacerbated by eating fatty food, butter, eggs, nut, fried food, sweets and spices. Table 3 shows the types of food that were most often believed by acne patients to aggravate their acne condition: nuts (86% of patients), chocolate (85.9%), biscuits and cakes (53.2%), oily food (59.0%) , fried foods (51%) and eggs (38%) . patients reported the exacerbation of their acne after eating the following kind of foods: butter and margarine (25%) milk, yogurt and cheese (20%), cream (19.5%) coffee and tee(12.2%)and spices (12.8%) .

Table 3 factors believed by acne patients to affect their
acne condition (n = 110)

Variable	Effect on acne condition (% of patients)		
	No effect	Worse	better
Menstrual cycle (females) (n = 55)	2.4	97.6	-
Emotional stress and worry	21	69	-
Hot weather and Excessive sweating	50	50	-
Cosmetics use (females) (n = 30)	75.0	25	-
Cold weather	34.3	-	65.7
Foods			
Nuts	14	86	-
Chocolate	14.1	85.9	-

Cakes and biscuits	46.8	53.2	-
Oily food	41.0	59.0	-
Eggs	62	38	-
Milk, yogurt and cheese	80	20	-
Butter and margarine	75	25	-
Cream	80.5	19.5	-
Coffee and tea	87.8	12.2	-
Spices	87.2	12.8	-
Vegetables and fruits	80.7	-	19.3

N = total number of patients.

in addition , 1.8% of acne patients noticed that their acne condition became worse after eating seeds and 12.1% after drinking coffee and tea. Acne patients believed that their acne condition became better when they eat vegetables and fruits.

Form the interviews with patients we noted that most acne patients in Afghanistan consume snacks and sweets, especially chocolate, and nuts, olive oil and fried food. They do not eat good quantities of vegetables and fruits; 81% of patients said that the usually have low to moderate and only 19% consume a good amount of fruits and vegetables in their diet.

Premenstrual exacerbation of acne was experienced by 97.6% of female acne patients, while 2.4% of them had noticed no effect of menstruation on their acne. Of the 40 females with acne who used cosmetics, 10(25.0%) claimed that their acne becomes worse by using cosmetics especially foundations and oily creams, while 30 noticed no effects (Table 3).

Discussion:

Acne is more common in adolescent than adult affecting only 8.2% of adult (9 out of 110). Our study is similar to Hospital Based Indian study,9.4% patients(29 out of 309) were more than 25 years of age.(1)

Acne is persistent disease with mean duration of ovear 5 years. Our study is similar to study conducted by Khunger and Kumar ,acne was persistent from adolescence in a majority of patients(73.2%)(16). whereas Goulden et al . noted that 82% of the study population hand persistent acne.(11)

Emotional stress and worry are implicated in aggravation of acne.

In the study carried out by Khunger and Kumar 25.7% of patients reported stress as an aggravating factor (16). Whereas Goulden et al. noted that 71% of the study population noted stress as aggravating factors (11).

 In our study 69% of patients reported exacerbation during period of emotional stress

Many cosmetics are comedogenic. Khunger and Kkumar observed that only 40 patients (22%) out of 176 using some form of cosmetic hand aggravation due to cosmetic use (16). In our study 10 patients (25%) out of 40 using some form of cosmetic reported them as aggravating factor, hot weather as exacerbating factor.

Study by Sardana et al showed that majority of patients with acne vulgaris worsened during summer. (22)

Khunger and Kumar reported summer season as aggraving factor in 36.7% of patients.(16)

In our study 50% of patients explained Hot weather and excessive sweating during summer as aggravating factor

It has been suggested that acne may be familial.

Khungar and Kumar reported that 38.8% of patients had at least one first degree relative affected acne (16).

In our study family history was positive in 66.9% of patients this might be related to other confounding factors such as hot weather, low quality of food (food lacking essential nutrients) ,

Acne, like others skin diseases, might be influenced by the nutritional status of the patient. It has been found that shortage in the essential fatty acids linoleic acid and linolenic acid causes follicular hyperkeratosis in the pilosevaceous duct, and increases the trans epidermal water loss in the skin of acne patients [30,4]. This supports the suggestion that acne vulgaris might be aggravated by the consumption of a diet rich in saturated fats and monosaturated acids and low in poly unsaturated fatty acids. We found that most acne patients in Afghanistan report consuming food that is high in saturated fats and carbohydrates such as snacks and sweets especially chocolate; they also consume nut, olive oil and fried food. They do not report eating a lot of vegetables and fruits that contain vitamins that may be beneficial for improving and modifying acne [3, 4].

Suggestion:

1-people should take care of hygiene to prevent acne

2-people should consume plenty amount of fruit and vegetable and lessen or avoid, in case of possibility, food aggravating acne condition

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