Original Research Article

Acne vulgaris and ocular dryness

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Abstract

Background: Acne vulgaris is an inflammatory disorder of pilosebaceous unit, which runs a chronic course and it is self-limiting. Hence; the present study was undertaken for assessing the prevalence of ocular dryness in patients with acne vulgaris. **Materials & methods:** A total of 100 patients with confirmed diagnosis of acne vulgaris (both inflammatory and non-inflammatory) complaining of eye irritation, foreign body sensation, watering or redness were enrolled. Screening of all the patients was done for dry eyes. Schirmer's test, tear film breakup time (TBUT), tear film height, presence of conjunctival injection, punctate epithelial erosions (PEE), and meibomian gland dysfunction (MGD) were used to diagnose dry eye. Complete demographic and clinical details of all the subjects were obtained. A Performa was made and clinical details of all the subjects were recorded simultaneously. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** Burning sensation/watering and foreign body sensation were the presenting complaint in 69 percent and 22 percent of the subjects respectively. Frequent redness and blurring of vision were the presenting complaints in 6 percent and 12 percent of the subjects respectively. Clear cornea was seen in 13 percent of the subjects while lusterless was seen in 79 percent of the subjects. Fluorescein staining was positive in 56 percent of the subjects while Schirmer's test was positive in 39 percent of the subjects. Overall, dry eyes were seen in 43 percent of the subjects. **Conclusion:** Androgenic hormones affect both acne vulgaris and mebomian glands. Hence; a strong correlation exists between acne vulgaris and ocular dryness.

Keywords: Acne, Ocular dryness

Introduction

Acne vulgaris is an inflammatory disorder of pilosebaceous unit, which runs a chronic course and it is self-limiting. Acne vulgaris is triggered by propionibacterium acnes in adolescence, under the influence of normal circulating dehydroepiandrosterone. It is a very common skin disorder which can present with inflammatory and non-inflammatory lesions. Potential sequelae of acne, such as scarring, dyspigmentation, and low self-esteem, may result in significant morbidity [1-3].

Typical acne lesions involve the pilosebaceous follicles and the interrelated processes of sebum production, Cutibacterium acnes (previously called Propionibacterium acnes) colonization, and inflammation. Acne may be classified as mild, moderate, or severe based on the number and type of skin lesions. Multiple treatment agents and formulations are available, with each agent targeting a specific area within acne pathogenesis. Treatment selection is based on disease severity, patient preference, and tolerability. Topical retinoids are indicated for acne of any severity and for maintenance therapy [4-6]. The most common adverse reactions observed during systemic acne treatment are mucocutaneous and ophthalmological. Ocular side effects associated with systemic acne treatment particularly with oral isotretinoin usage were investigated many times. These undesired ocular side effects include dry eye, blepharo conjunctivitis,corneal opacities, abnormal meibomian gland secretion, conjunctival epitheliopathy, photophobia, and teratogenic ocular abnormalities [6-8]. Hence; the present study was undertaken for assessing the prevalence of ocular dryness in patients with acne vulgaris.

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Materials & methods

The present study was undertaken for assessing the prevalence of ocular dryness in patients with acne vulgaris. A total of 100 patients with confirmed diagnosis of acne vulgaris (both inflammatory and non-inflammatory) complaining of eye irritation, foreign body sensation, watering or redness were enrolled. Screening of all the patients was done for dry eyes. Schirmer's test, tear film breakup time (TBUT), tear film height, presence of conjunctival injection, punctate epithelial erosions (PEE), and meibomian gland dysfunction (MGD) were used to diagnose dry eye. Complete demographic and clinical details of all the subjects were obtained. A Performa was made and clinical details of all the subjects were recorded simultaneously. Patients with presence of any other systemic illness or any known drug allergy were excluded. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Univariate regression curve was used for evaluation of level of significance.

Results

32 percent of the subjects with acne vulgaris belonged to the age group of less than 30 years. 38 percent of the subjects belonged to the age group of 30 to 50 years. 59 percent of the subjects were males. Burning sensation/watering and foreign body sensation were the presenting complaint in 69 percent and 22 percent of the subjects respectively. Frequent redness and blurring of vision were the presenting complaints in 6 percent and 12 percent of the subjects respectively. Clear cornea was seen in 13 percent of the subjects while lusterless was seen in 79 percent of the subjects. Fluorescein staining was positive in 56 percent of the subjects while Schirmer's test was positive in 39 percent of the subjects. Overall, dry eyes were seen in 43 percent of the subjects.

Table 1: Demographic data

Variable		Number of subjects	Percentage
Age group (years)	Less than 30	32	32
	30 to 50	38	38
	More than 50	30	30
Gender	Males	59	59
	Females	41	41

Table 2: Presenting complaints

Complaints	Number of subjects	Percentage
Burning sensation/watering	69	69
Foreign body sensation	22	22
Frequent redness	6	6
Blurring of vision	12	12

Table 3: Corneal findings

Corneal findings	Number of subjects	Percentage
Clear cornea	13	13
Lusterless	79	79
Punctate lesions	8	8

Table 4: Fluorescein staining

Fluorescein staining	Number of subjects	Percentage
Negative	55	55
Positive	45	45

Table 5: Schirmer's test results

Schirmer's test results	Number of subjects	Percentage
Negative	61	61
Positive	39	39

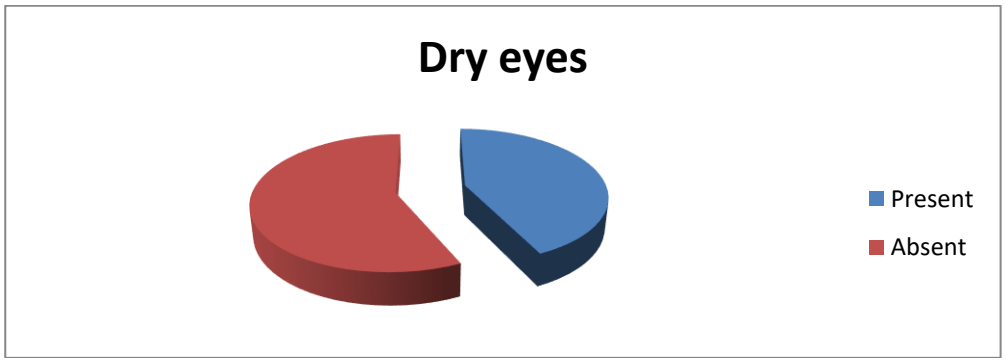

Fig 1: Overall prevalence of dry eyes

Discussion

"Acne vulgaris" (adolescent acne) is one of the dermatoses which is discussed and interpreted most commonly. It is a chronic inflammatory disease of the pilocebaceous unit and observed equally in both genders. It usually starts in the adolescence, but its time of ending is variable. Its age of onset may be 18–20 years or it may be delayed until 25–30 years. Sometimes it may start at more advanced ages. "Acne vulgaris" which does not affect the general health status, which has no vital danger and which appears to be a simple disease may constitute a big and important problem just with its appearance in the present social life in which human communication has reached a top level, because our skin and especially our face is the number one organ for this communication and is very important in terms of body perception[7-10]. Hence; the present study was undertaken for assessing the prevalence of ocular dryness in patients with acne vulgaris.

In the present study, 32 percent of the subjects with acne vulgaris belonged to the age group of less than 30 years. 38 percent of the subjects belonged to the age group of 30 to 50 years. 59 percent of the subjects were males. Burning sensation/watering and foreign body sensation were the presenting complaint in 69 percent and 22 percent of the subjects respectively. Frequent redness and blurring of vision were the presenting complaints in 6 percent and 12 percent of the subjects respectively. In a previous study conducted by Seray Aslan Bayhan et al, authors assessed the ocular side effects during topical retinoid-antibiotic combination treatment in patients with facial acne vulgaris. Forty-three patients applying topical isotretinoin+ erythromycin combination (isotrexin gel, GlaxoSmithKline) once daily for the treatment of acne vulgaris was enrolled. Full ophthalmologic examination, Schirmer test (with topical anesthesia), fluorescein break-up time (BUT), corneal fluorescein staining and tear osmolarity measurement with the TearLab system (TearLab Corporation) were carried out before and at the end of the first month of the treatment. For evaluation of symptoms participants completed the ocular surface disease index (OSDI) questionnaire at each visit. Mean tear osmolarity increased significantly from 282.09±8.95 mOsm/L at baseline to 300.39±16.65 mOsm/L after the treatment ($p<0.001$). BUT decreased from an average of 11.93±1.12s at baseline

to 6.65±3.03s at the end of the first month (p<0.001). The OSDI score worsened significantly (5.41±3.65 vs 21.53±12.95, p<0.001) and punctate epitheliopathy was seen in 51% of eyes after the treatment. The average Schirmer values were 13.09±1.90 and 12.41± 2.44mm /5min before and at the end of the first month of the treatment, respectively (p=0.117). Their results indicated that topical retinoid-antibiotic combination treatment causes significant signs and symptoms of dry eye[11].In the present study, clear cornea was seen in 13 percent of the subjects while lusterless was seen in 79 percent of the subjects. Fluorescein staining was positive in 56 percent of the subjects while Schirmer's test was positive in 39 percent of the subjects. Overall, dry eyes were seen in 43 percent of the subjects. Our results were in concordance with the results obtained by Sujit Das et al who also reported similar findings. In their study, the authors identified the prevalence of dryness in patients of acne vulgaris. All patients between 13 -30 years of age with acne vulgaris both inflammatory and non inflammatory were screened randomly for dry eye using Schirmer's test, tear film breakup time (TBUT), tear film height, presence of conjunctival injection, punctate epithelial erosions (PEE) on flourescein stain. Meibomian gland dysfunction (MGD) was used to diagnose dry eye. Out of 200 patients male were [n=106] predominated and mostly in the age group of 21-25 years. After 3 months of treatment there was marked improvement in tear film break up time [TBUT] and Schirmer's test. Only 74 cases (37%) had punctate epitheleal lesions and 36% cases had associated mebomian gland dysfunction. Both acne vulgaris and mebomian glands are influenced by androgenic hormone and there is strong correlation between acne vulgaris and ocular dryness[12].

Conclusion

From the above results, the authors conclude that androgenic hormones affect both acne vulgaris and mebomian glands. Hence; a strong correlation exists between acne vulgaris and ocular dryness.

Conflict of Interest: Nil
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