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ASSESSMENT OUTCOMES OF PATIENT-REPORTED SYMPTOMS OF BLEPHARITIS AND KNOW THE LOGISTIC ANALYSIS OF RISK FACTORS

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Abstract:

A demographic study was conducted in Iraq on 120 patients suffering from blepharitis with a study period from 1 March 2023 to 1 April 2024. Patients were randomly selected from different hospitals in Iraq. Also, the abstract highlighted the evaluation of patient-reported symptoms related to blepharitis and the identification of risk factors through logistic regression analysis. In addition, the study emphasized the importance of understanding these symptoms and risk factors in order to improve the diagnosis and management strategies for blepharitis cases. Furthermore, the findings of the study found that a demographic study was conducted in Iraq on patients whose ages ranged from 30 to 60 years.
Patients were distributed according to the type of blepharitis into Posterior blepharitis 66.67% and 80 patients' Anterior blepharitis 33.33% with 40 patients.

The statistical analysis program identified the following factors as the most dangerous for patients in this study:

The OSDI score ranged from 1.6 to 4.1, with a mean of 3.1. This difference was statistically significant ($p < 0.001$), and the presence of crusts on the eyelids was also observed. The statistical analysis program identified the following as the most dangerous factors for patients in this study:1.7-3.43: OI, CS 2.6 With a P-value of 0.001, where the results indicated a significant correlation between the variables 2.1-3.1 ($p = 0.02$). In logistic regression analysis, it is revealed that the chances of experiencing blepharitis symptoms increased with a variety of risk factors: aging, presence of allergies, and other eye conditions such as the history of the same condition in the patient's eyes.

Introduction

Introduction

Blepharitis is an inflammatory condition affecting the anterior or posterior lamina of the eyelids. It is a common external eye disease encountered in ophthalmic practice. Its aetiology is multifactorial and is associated with ocular and skin diseases. The infectious cause of blepharitis is usually attributed to staphylococcal bacteria, although viruses, fungi, and parasites have also been implicated [1].

The disease progresses through periods of exacerbation and remission, during which patients may experience symptoms such as burning, itching, irritation, photophobia, scaling, and loss of eyelashes [2]. The location of blepharitis may be anterior, affecting the area surrounding the base of the eyelashes, or posterior, due to dysfunction of the meibomian glands and alterations of meibomian secretion. Posterior blepharitis is a more chronic and persistent inflammatory disorder than anterior blepharitis. It may be associated with acne rosacea and mixed [3,4].

Some self-report instruments that assess ocular surface disease are the McMonnies Dry Eye Index [2, 3], the Ocular Surface Disease Index (OCDI) [5], the Dry Eye Questionnaire (DEQ 2001) [5], the Impact of Dry Eye on Everyday Life (IDEEL) [6,7], and the Subjective Evaluation of Symptom Dryness (SESoD) item [7]. All these instruments contain items related to ocular symptoms but do not cover all symptoms in individuals with current blepharitis in its entirety.

This paper presents a novel measure of blepharitis symptoms, known as BLISS, which has been designed for large-scale, multi-center clinical studies. Patients were selected based on a diagnosis of blepharitis prior to their participation in the study [8].

A 2009 US survey revealed that approximately one-third of patients seen by an ophthalmologist and approximately half of patients seen by an optometrist exhibited signs of blepharitis. Among the causes of blepharitis, infestation with Demodex mites, the most prevalent ectoparasitic infestation in humans, is noteworthy. Although there is a strong association between Demodex infestation and blepharitis [9],

Previous studies have identified two distinct types of blepharitis: posterior blepharitis and anterior blepharitis. This is the most prevalent form of blepharitis, characterized by inflammation of the inner edge of the eyelid in contact with the eyeball, resulting from obstruction of the meibomian gland openings, which secrete oils that lubricate the eyelids. This results in dry eyes and subsequent inflammation and infection. It may also be caused by skin diseases, such as rosacea or dandruff. [10.11]

Anterior blepharitis manifests as an inflammation of the anterior outer portion of the eyelid, specifically the eyelash follicle. It is typically caused by bacteria (staphylococcal blepharitis) or dandruff of the scalp and eyebrows (seborrheic blepharitis). These bacteria are commonly found on the face and eyelids, but if their presence becomes excessive or the eyelid area reacts poorly to it, it can lead to complications. An infection may ensue. It is also worth noting that allergies in the eyelashes can also cause anterior blepharitis, although this is a less common occurrence [12].

Patients and method

A demographic study was conducted in Iraq on 120 patients suffering from blepharitis. The patients were randomly selected. The patient's health data were collected from different hospitals in Iraq with a study period from 1-3-2023 to 1-4-2024 where Written consent was obtained from all patients to record their data and to publish this study.

This study was designed according to several questionnaires that were distributed to the patients to determine the correct demographic characteristics. Firstly, information was collected on height and

weight, age, symptoms and causes. In addition, the type of inflammation to which the patient was exposed was assessed. Patients were divided into two types of blepharitis: Posterior blepharitis, Anterior blepharitis.

In this study, the patient's general quality of life was evaluated according to a special scale to identify the main characteristics of the patients. Subsequently, the patients were evaluated according to the Schirmer scale, which is used to assess tear production. This is achieved by placing a thin strip of filter paper on the inside of the lower eyelid, whereby the level of hydration is measured to determine the quantity of tear production.

The Schirmer test is employed to ascertain whether the eye is capable of producing an adequate quantity of tears to maintain adequate moisture. This test is conducted when the patient is experiencing severe dehydration and excessive tearing as a consequence of symptoms of dehydration where the test is straightforward to perform and poses no risk to the patient.

Prior to the test, it is essential to instill drops containing a local anesthetic to prevent watering of the eyes due to potential irritation caused by the filter paper. The doctor then inserts these special strips of paper into the lower eyelid between the lining and the conjunctiva in each eye. The eyes are typically closed for a period of five minutes, gently. Following this, the doctor removes the strips and measures the resulting hydration. If the measurement is less than 10 millimeters after five minutes, it can be concluded that the diagnosis of dry eye is correct, as this indicates a decreased tear secretion. Where the data was evaluated and analyzed using the statistical analysis program IBM SOFT SPSS 22, in addition to the Microsoft Excel 2013 program. According to the statistical analysis program, the data was analyzed logistically to identify the risk factors affecting this study.

Results

Table 1- Study of demographic characteristics of patients diagnosed with blepharitis of 120 patients

Variable	f	P%
Age		
30-39	50	41.67
40-49	40	33.33
50-60	30	25.0
BMI		
24-27	30	25.00
28-31	60	50.00
>31	30	25.00
Symptoms		
Burning feeling in the eyes.	44	36.67
Itching, or redness and swelling of the eyelids.	37	30.83
Dry Eye.	20	16.67
Crusts on the eyelids.	20	16.67
Education		
Primary	20	16.67
Secondary	60	50.00
College	30	25.00
High	10	8.33
Cause		
Seborrheic dermatitis	10	8.33
Infection	29	24.17

Clogged	11	9.17
Rosacea	30	25.00
Allergies	20	16.67
Dry eyes	20	16.67
Sex		
Male	60	50
Female	60	50

Fig 1- Prevalence of patients according to types of blepharitis

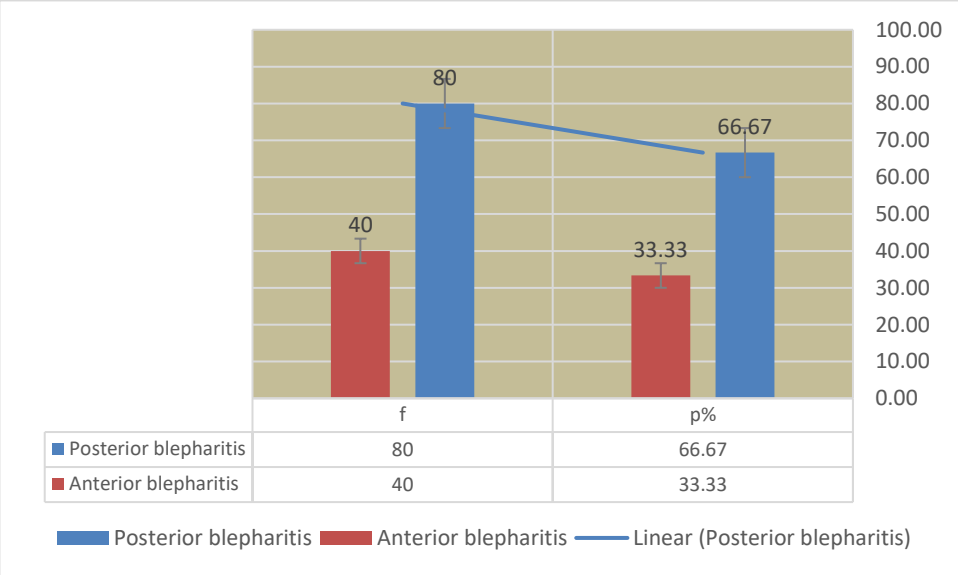

Table 2- Assessment outcomes according to the Schirmer test to measure the amount of tears produced by the eyes

v	mean	sd
30-39	4.4	1.1
40-49	3.98	0.66
50-60	3.87	0.89

Table 3- Quality of life assessment of patients with blepharitis

Variable	Mean	Sd
Social side	44.3	6.6
Depression	49.9	4.9
psychological aspect	55.2	7.1
pain	39.9	5.2
fear	48.5	4.4

Table 4- Evaluation of outcomes of secondary blepharitis patients related to visual acuity and TBUT, OSDI score, median

Characteristics of the patients and the control group

Group	**Patients (*n* = 68)**
Vision OD	0.67±0.12
TBUT (OD) in s, median (Q1, Q3)	3.2±1.1
Schirmer test score (OD) in mm, median	4.4±2.2
OSDI score, median (Q1, Q3)	30.2±5.2

Table 5- Coefficient of correlation between blepharitis and parameter of study

v	blepharitis	sig
OSDI score	0.76*	0.001
Schirmer test score (OD)	0.435	0.001
TBUT (OD)	0.98	0.0234

Table 6- Logistic regression analysis to identify risk factors

Variable	CS	OI	P-value
Age	1.1-1.5	1.2	0.65
Sex			
Male	1.9-2.3	2.1	0.04
Female	2.2-2.5	2.3	0.03
OSDI score	1.6-4.1	3.1	0.001
Schirmer test score (OD)	1.98-3.8	2.8	0.001
TBUT (OD)	1.4-2.1	1.7	0.0234
Burning feeling in the eyes.	1.5-2.0	1.67	0.75
Itching, or redness and swelling of the eyelids.	1.4-1.9	1.68	0.054
Dry Eye.	2.1-3.1	2.7	0.02
Crusts on the eyelids.	1.7-3.43	2.6	0.001
Posterior blepharitis	2.2-4.9	3.3	0.001
Anterior blepharitis	2.7-5.2	3.8	0.001

Discussion

The present study examined blepharitis among Iraqi patients, evaluated their satisfaction with the quality of life, and analysed the risk factors affecting this condition. A demographic study was conducted in Iraq on patients whose ages ranged from 30 to 60 years. It was observed that the prevalence of blepharitis was on the rise among patients aged between 30 and 39, with 50 patients falling into this category, followed by those aged between 40 and 49, with 40 patients in this group. This information is presented in Table 1.

Blepharitis is a prevalent condition, particularly characterized by inflammation of the eyelid margins. It can affect individuals of any age. It is typically bilateral, although it rarely affects visual acuity.

The swelling of the eyelid is a consequence of irritation or an excess of fluid within the eyelid. The condition may affect both eyelids or one of them. In some instances, the condition is accompanied by a sensation of pain, whereas in others, it is not. In some cases, it may also be accompanied by itching. Eyelid swelling has a number of potential causes, which may vary in severity from mild to serious. The most significant of these causes are as follows:

Seborrheic dermatitis, infection, clogged rosacea, allergies, and dry eyes are the most common causes of eyelid swelling [13,14,15].

The symptoms of blepharitis include a burning sensation in the eye, tears, a sensation of a foreign body in the eye, redness of the eye, and pain. It should be noted that the aforementioned conditions

may not directly result in the onset of eyelid inflammation. However, they may render the eyelid margins more susceptible to infection by microorganisms such as bacteria and others. [16,17,18,19]

[20] Patients experience multiple symptoms when they have severe blepharitis. These include dry eyes, itchy skin, irritation, and problems with doing things like seeing or putting on makeup. Also, psychopathological disturbances, as well as anxiety or fear of social disapproval, can be found in such patients, leading to a decrease in their overall quality of life.

Tasks designed to uplift standards of living among people with blepharitis include daily routines for cleaning eyelids using products such as Blephamed eye gel, artificial tears, warm compresses, and lid wipes [21]. Additionally, patients with anxious type character traits benefit more from botulinum toxin therapy in that their quality of life improves as a result. Where in a general perspective, what is very important is that the people who have been affected manage the symptoms of blepharitis in addition to dealing with psychological dimensions on one hand or another, which are related but not necessary.

Failure to treat inflammation of the eyelids can result in severe eye problems in the long term, which may include impairment of eyesight. Permanent loss of vision could occur from the inflammation of the orbit tissues, necessitating immediate attention if develop sudden inflammation of the uvea occurs. It is, therefore, important to seek medical advice promptly if you experience any symptoms of this condition. Failure to do so could result in permanent blindness.

Delaying the treatment of inflammation around the eye may lead to pathological changes such as fibrosis and restructuring of tissues, which in turn could cause complications that impair the visual system. Therefore, physicians have to find out what causes the inflammation first before implementing an immunosuppression regime, for instance, if it is likely to cause permanent damage to the eyelid or the whole orbit.

According to the results of research, different risk factors are encountered by patients who have blepharitis. Some studies reveal that ischemic stroke has a high chance of occurring because of blepharitis patients, whereby those with this eye problem have a 1.32 times greater likelihood compared to individuals without any history on this condition (citation). Moreover, the existence of helicobacter pylori is likely to be a sign of someone having blepharitis. Thereby, it may be connected to this condition. Moreover, certain conditions, such as diabetes, high blood pressure, heart disease, stroke, etc., have been implicated as potential risk factors associated with the development of blepharitis. The advanced proteome analysis identified specific protein changes in patients suffering from anterior blepharitis. It is characterized by changes in processes involved in the cytoplasmic translation, activation of B lymphocytes as well as the complement system and phagocytosis.

Conclusion

Logistic regression analysis had shown that certain risk factors like age, presence of allergies, and history of other eye conditions were associated with increased odds of experiencing symptoms of blepharitis, where the study revealed that patient-reported symptoms of blepharitis can vary greatly and are diverse, which include issues in term of burning, itching, and excessive tearing and Understanding these risk factors and the varied symptoms reported by patients is crucial for healthcare professionals to effectively diagnose and manage blepharitis cases.

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