

# ATTITUDE OF EYE CARE PRACTITIONERS TOWARDS DIAGNOSTIC TESTS AND THERAPIES FOR DRY EYE DISEASE

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## ABSTRACT

**PURPOSE:** To provides an outline of the analysis, treatment and information attitudes on dry eye disease among eye care professionals (optometrists and ophthalmologists)

**METHOD:** Total 74 respondents from Mayo Hospital Lahore and Shifa Eye Trust Islamabad were included in the study. Data was collected by non-probability purposive sampling method in a self-made performa. It was descriptive cross sectional study. A Performa was distributed among Eye OPD Mayo hospital and Shifa Eye Trust to assess the responses of eye care providers towards diagnostic test and treatments for dry eye disease.

**RESULTS:** The responses of 74 participants, that tear breakup time 79.4% was the most common used test for treatment of dry eye disease and 64.9% of eye professionals believed that the first-line treatment for dry eye was aqueous based artificial tears The most common symptoms were foreign body sensation agreed by 67.6% of the eye specialists. 52.7% of eye care specialists assumed that meibomium gland dysfunction was the major cause of dry eye disease. 37.8% of practitioners responded that allergies and smoking were common co-morbid condition for DED.

**CONCLUSION:** Most common test used to diagnose DED was tear break-up time and Schirmer test with anesthesia was the least common test used, (45.9%) of the eye professionals had chosen patient history as the main test to gauge therapeutic effect. An aqueous based artificial tear was their preferred treatment (64.9%) for DED.

**KEY WORDS:** Dry eyes, Eye care providers, Diagnostic criteria, Therapeutic effect

## INTRODUCTION

Dry eye disease is a major insufficiency of tear which causes irritation, pain, visual disturbances and variability of tear film that greatly affects the ocular surface. Tear-film (TF) constancy guards the ocular surface epithelium from dryness and is protected by mutual aid between the ocular surface constituents comprising components of the TF and epithelium of ocular surface. Thus, when those constituents are deficient, the TF breakup that begins dry eye.<sup>1</sup> The principles used for diagnosis and the demographic studied have prevalence rate of 4.3% to 75%.<sup>2,3</sup> Apart from it being a prevalent ophthalmic disease, it also has a huge impact on quality of life and

performance of dry eye patient.<sup>4</sup> and also loss in visual function.<sup>5</sup> The following definition of DED is provided by DEWS report: A multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film instability and hyperosmolarity, ocular surface inflammation and damage play etiological roles.<sup>6</sup> Two main groups of dry eye are; 1) Evaporative and 2) Tear deficient. These two groups are further subdivided according to a choice of intrinsic and extrinsic etiological factors. Evaporative dry eye was sub categorized into Intrinsic and Extrinsic.<sup>7</sup> Further classification of tear deficient dry eye was Sjogren and Non- Sjogren. The devotion of participant's clinical attitude was

compared with current evidence-based recommendations, as enlightened by the International Dry Eye Workshop<sup>8-10</sup> and International workshop on Meibomium Gland Dysfunction (MGD).<sup>11,12</sup> The difficulty tackled by eye care practitioners is that DED diagnosis and treatment varies by flexibility in the symptoms and signs of the disease, as well as the poor coordination between clinical presentation and symptoms of patient.<sup>13,14</sup> Deprived of universal agreement for diagnostic test, there is significant variation in self-made clinical care policies among optometrists and ophthalmologists.<sup>9</sup> Tests can be done for clinical diagnoses of dry eye are: Fluorescein break-up time (FBUT), Cotton Thread (phenol red test), Rose Bengal Staining, Schirmer test, Fluorescein Staining, Meniscus Height, Meibomium gland evaluation, and Patient History. Dry eye disease can be diagnosed by several diagnostic tests, in spite of the fact that severity of symptoms and degree of ocular surface damage may not be mutually related.<sup>15</sup> Additional tests can be applied to categorize the disease into evaporative dry eye or tear-deficient once diagnosis has been done. Therefore, diagnosis of dry eye disease, depends on the results of diagnostic tests.<sup>16</sup> Dry eye disorder (DED) is one of the foremost regularly experienced ocular illnesses. In clinics, about 25% of patients presented with dry eye symptoms, creating it a developing open wellbeing health issue and the commonest ailments seen by eye care practitioners.<sup>17</sup> Eye care professionals (Ophthalmologists and Optometrists) appear an incredible assurance to revolutionize the diagnostic test and treatment in DED, advertising many benefits such as site specific and maintained conveyance of therapeutic agents. Optometrists moreover oversee DED as in their domain they can examine, analyze and manage certain disease or in extreme cases they alluded the case to Ophthalmologists. The motive of my research was to check preferences of eye care practitioners about the managing of dry eye disease and also accessing possible diagnostic test performed by eye care providers while dealing dry eye disorder.

## MATERIALS AND METHODS

A descriptive cross sectional survey was performed at Institute of Ophthalmology Mayo hospital Lahore and Al-Shifa eye trust Islamabad to investigate the convictions of eye care professionals about diagnosis and management therapies for Dry eye disease. Duration of study was three months after approval of synopsis from September 2020 to December 2020. Total 74 participants were included in my study who actively participated in filling a self-made questionnaire. The performa consists of 12 questions to evaluate eye care specialist's knowledge and practice about DED. The technique used in this study was non-probability purposive sampling. The data was entered and analyzed by using SPSS version 25.0. The quantitative data like experience, daily practice and counseling time was presented as mean median, mode and  $\pm$  standard deviation. The qualitative data like designation, clinical test, most common symptoms and other variables were measured by frequencies and percentages.

## RESULTS

In my study total 74 respondents completed the performa out of 69 were ophthalmologists and 5 were optometrists. Majority of the performas was filled by medical officers (25.7%). Experience of the respondents between 1-5 years was (43.2%), 6-10 years was (33.8%), 11-15 years was (9.5%) and more than 15 years was (13.5%). Most common test used to diagnose dry eye disease was tear break-up time 59 (79.7%) of the eye care professionals. Schirmer test with anesthesia was used by 6 (8.1%) and Schirmer test without anesthesia was used by 9 (12.2%) of the respondents. Eye care practitioners reported that foreign body sensation, itching, tearing, photophobia and ocular pain were the common symptoms narrated by the dry eye patients (67.6%, 24.3%, 5.4%, 1.4% and 1.4% respectively; Table-1). Eye professionals assumed that meibomium gland dysfunction, aging, environmental conditions, non-specific inflammation of tear gland, allergic conjunctivitis and air conditioners were the common

causes for dry eye disease (52.7%, 18.9%, 13.5%, 6.8%, 6.8%, 1.4% respectively; Table-2). Allergies or smoking, sjogren syndrome, contact lens wearer, diabetes, rheumatoid arthritis, thyroid eye disease and hypertension (37.8%, 18.9%, 16.2%, 9.5%, 6.8%, 6.8% and 4.1%) respectively; were the common co morbid conditions for DED. Eye professionals had chosen patient history, tear break-up time, schirmer test and Lissamine green (45.9%, 40.5%, 12.2% and 1.4% respectively; Table-3) were the test used to guide therapeutic effect for dry eye. Most practitioners stated that 1% to 10% of dry eye cases they manage in a daily practice. First choice of treatment prescribed by eye care providers was aqueous based artificial tears 48 (64.9%) and lipid based artificial tear 26 (35.1%) was their second choice of treatment. (Table-4). Eye care experts reported textbooks, senior colleagues, internet and professional magazines (64.9%, 14.9%, 13.9% and 6.8%) respectively; as their main source of information on dry eye. Most of the eye care professionals 37 (50%) believed that dry eye failed treatment with artificial tears was up to 20% with  $\pm$ SD of  $\pm$ .75079. Counseling time reported by the eye care practitioners in between 1-3min, 4-6 min, 7-9 min and more than 10 min was (55.4%, 25.7%, 9.5%, 9.5%) respectively.

## DISCUSSION

Health care provider's attitudes and perspective to deal with common eye problems is a major concern in our society. Dry eye disease is a very common ailment in our part of the world. It has a major implication on an individual's wellbeing and to carry out every day activity. Its diagnoses and management plays a vital role in early rehabilitation of the patients. Several studies have been done in previous years to access the behavior of eye care providers regarding treatment and diagnostic tests for dry eye disease. In patients with autoimmune disorder dry eye disease is more prevalent 18 that affect around 8% of the people. Common symptoms of DED include ocular pain, itching, dryness, irritation, foreign body

sensation, photophobia, and tearing. A study conducted in Ghana, where most common symptom practitioners heard from patients was burning sensation (33.8%) followed by foreign body sensation (22.5%).<sup>2</sup> In my study of eye

Professionals found out that foreign body sensation (67.6%) was most common symptoms for dry eye disease, followed by itching (24.3%).

Dry eye disease is caused by various factors that include nonspecific inflammation of tear gland, antihistamine use, allergic conjunctivitis, air conditions aging, environmental issues and weather conditions. From the above study<sup>2</sup> Most practitioners reported meibomian gland dysfunction (47.9%) followed by pterygium (19.7%) as the most common cause of dry eye. This is consistent with the meibomian gland dysfunction workshop finding that meibomian gland dysfunction might well be the leading cause of dry eye throughout the world. In my study 52.7% of eye professionals assume that Meibomium gland dysfunction is commonest cause of dry eye.

Many parameters can be assessed like ocular surface health, tear film stability and production of tears. Tests can be done for clinical diagnoses of dry eye are: Fluorescein break-up time (FBUT), Cotton Thread (phenol red test), Rose Bengal Staining, Schirmer test, Fluorescein Staining, Meniscus Height, Meibomium gland evaluation, and Patient History. A survey reported a large variation in use of diagnostic test was noted. Total sixty-one respondents were participated in this study. Overall, patient history was determined to be the most commonly applied diagnostic test (95%, 58/61)<sup>19</sup>. According to my study, patient history is considered as the major test used to assess therapeutic effects as (45.95%, 34/74) of professionals had chosen.

In my study the most ideal treatment of choice for dry eye was artificial tears as (64.9%, 48/74) of the eye professionals in my survey agreed about it. From the above mentioned study<sup>19</sup> each practitioner was asked which dry eye treatments they would recommend. Artificial tear supplements and improved

lid hygiene were reported as the most common options selected by the entire group as 87% (20/23) of ophthalmologists recommend punctal plugs compared to only 31.6% (12/38) of optometrists. Artificial tears are currently the pillar of treatment of dry eye disease.<sup>8,20,21</sup> After instilling artificial tears, the decrease in optical variations related with the progressively unpredictable tear film may cause change within the optical quality of dry eyes.<sup>22</sup> The impact of tear substitutes on vision may be of diagnostic value in recognizing ocular surface variation in symptomatic and non-symptomatic patients.<sup>23</sup>

Management of disease depends upon severity level. Main objective is to reduce symptoms and maintenance of ocular surface health. Ecological adaptations can be done such as increasing humidity in environment where person is living or working. Different kinds of artificial tears are suggested if the symptoms are minor. Lid cleanliness is useful in the management of hyper evaporative dry eye.<sup>24</sup> There are vital changes in tear film because tears evaporate between blinks. Due to dry eye syndrome not only vision is affected but it also has a great impact on psychological status of patients especially those ones who are experiencing symptoms from prolonged period and are getting treatments but not getting satisfactory results. The ratio of this disease is high in females as compared to males.

## CONCLUSION

It is concluded that commonly used test by practitioners for diagnosis of dry eye disease was tear break-up time and Schirmer test with anesthesia was the least common test used, 45.9% of the eye professionals had chosen patient history as the main test to gauge therapeutic effect. Foreign body sensation was most common symptom while meibomium gland dysfunction was major cause for dry eye as reported by eye practitioners. An aqueous based artificial tear was their preferred treatment (64.9%) for DED.

## RECOMMENDATIONS

Eye care practitioners should show their interest towards treatment modalities and diagnosis of dry eye disease by using appropriate diagnostic test to assess dry eye disease. Majority of eye care practitioners recommended that artificial tears were the first step in the treatment of dry eye as they provide quick relief and soothing effect to the vision. Many cases reported that insufficiency of oil (meibum) causes dry eye disease. To treat meibomium gland dysfunction doctors may prescribe warm compressions to soften the hard meibum. Dry eye signs and symptoms can be relieved by adding omega-3 fatty acids and nutritional supplements to the diet.

Table no.1: Distribution by most common symptom (n=74)

Most Common Symptom	Frequency	Percentage
Ocular pain	1	1.4
Itching	18	24.3
Foreign body sensation	50	67.6
Tearing	4	5.4
Photophobia	1	1.4
<b>Total</b>	<b>74</b>	<b>100.0</b>

Table no.2: Distribution by Commonest cause of Dry Eye (n=74).

Commonest cause of Dry Eye	Frequency	Percentage
Meibomium gland dysfunction	39	52.7
Nonspecific inflammation of the tear gland	5	6.8
Environmental conditions	10	13.5
Allergic conjunctivitis	5	6.8
Air conditioners	1	1.4
Aging	14	18.9
<b>Total</b>	<b>74</b>	<b>100.0</b>

Table no.3: Distribution by Main test used to gauge therapeutic effects (n=74).

Main test to gauge therapeutic effects	Frequency	Percentage
Patient history	34	45.9
Schirmer test	9	12.2
Tear break-up time	30	40.5
Lissamine green	1	1.4
<b>Total</b>	<b>74</b>	<b>100.0</b>

Table 4: Distribution by Treatment of choice (n=74).

Treatment of choice	Frequency	Percentage
Lipid based artificial tears	26	35.1
Aqueous based artificial tears	48	64.9
<b>Total</b>	<b>74</b>	<b>100.0</b>

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