



# Effects of Dry Eye

**DR. Y. INDIRA**      ASSOCIATE PROFESSOR, DEPT OF PHYSIOLOGY, RIMS, KADAPA ANDHRAPRADESH

**DR. CHANDRASEKHAR ATHIKARI**      ASSOCIATE PROFESSOR , DEPT OF PHYSIOLOGY, RIMS, KADAPA, ANDHRAPRADESH

**ABSTRACT** Dry eye is one of the most common causes of chronic low grade burning ,irritation and discomfort of eyes, becoming commoner among the people all over the world. Added to the systemic factors, drugs and environment alter the characteristics of the tear film, which is indispensable a healthy ocular surface. So a better understanding of the disease and better mode of treatment would aid the physician to help those patients to overcome this chronic plaguing problem and maintain a good visual acuity patients and comfort for the rest of their life and thereby ensure a better living condition for these patients with this incurable disease.  
 To evaluate the dry eye status in patients selected for the study.to evaluate the associated risk factors contributing to dry eye. To evaluate the efficacy of different modalities of treatment in mild moderate and severe dry eye. Ninety patients patients with dry eyes were studied.Of the 90 patients 70 patients had primary ocular disease.Inferior tear meniscus was reduced in 80% of the patients in the study. 32.2% of these patients belonged to category of computer vision syndrome. Hence in this study it is observed that early diagnosis of dry eye and its systemic associations is important to prevent corneal complications.

**KEYWORDS**      dry eye , cornea,systemic associations

**Introduction**

Dry eye is a disorder of the tear film due to tear deficiency or excessive tear evaporation which causes damage to the interpalpebral ocular surface and is associated with symptoms of ocular discomfort.

- causes of dry syndrome
- congenital :
  - riley day syndrome
  - alacrimia
- acquired :
  - idiopathic keratoconjunctivitis sicca
  - blepharitis
- clinical features of dry eye :
  - foreign body sensation
  - itching
  - burning sensation and redness
  - ropy mucous discharge
  - pain with movement of eyelids
  - photophobia
  - dryness of the eye
  - blurring of vision
- complications :
  - ulcers and infections of the cornea are the most serious complications
- treatment :
  - tear substitution
  - tear preservation
  - tear stimulation

**Materials and methods :**

In this prospective study 180 eyes of 90 patients who attended our hospital between march 2015 to January 2016 .

Visual acuity was measured by snellen” chart at first visit and subsequent follow up.

Anterior segment examination

The following were looked for

- Lids and lid margins for any infection ,blepharitis or meibomitis
- Bulbar conjunctiva for any vascular dilation,xerosis
- Corneal surface for loss of luster, opacity,punctate keratitis
- Tear film debris
- Lacrimal system was examined for gland enlargement and duct patency

The following clinical tests were done

- Schirmer” test I –was done with 41 – what man filter paper
- Basal secretion test – schemer test after using 4% xylocaine.
- Flourescein staining – was done using sterile flourescein strips
- Tear breakup time – measured by staining the tears with flourescein
- Rose Bengal solution –using 1% rose Bengal solution

**Results**

Most patients of dry eye were belonging to the age group between 21 to 50 years

Of the 90 patients 70 cases were with primary ocular disease. of the 90 patients taken up for the dry eye in this study 20 patients had systemic associations mainly rheumatoid arthritis.

All patients were symptomatic at presentation .foreign body sensation and itching were the predominant complaints.

The following results were obtained

Values of <5mm of Schirmer’s test I and tear film break up time of <5 secs and Rose Bengal staining of more than 3 are significant and diagnostic of dry eye syndrome.

Based on schirmers test I and BUT the patients were graded according to the classifications of J.Daniel Nelson M.D as severe moderate and mild cases.

## GRADING OF DRY EYE

Severe dry eyes

Clinical tests of the 22 patients with severe dry eyes showed  
12 had < 1mm of schirmers test I in both eyes  
10 had < 1sec of TBUT  
6 had < 3 sec of TBUT

Rose Bengal staining varied from grade C to A

Moderate dry eye

28 patients belonged to this group  
28 patients had 1-5 mm of Schirmer's test I in both eyes.  
14 had <5 sec of TBUT  
11 had < 5- 10 secs of TBUT.

Rose Bengal staining pattern was C,B or A.

Mild dry eye

Of the 40 patients in this group.  
30 had <10 mm of Schirmer's test I  
40 had > 10mm of Schirmer's test I  
These 10 patients showed basal secretion test of 5-10 mm  
TBUT ranged between 1 to 10 secs .  
Rose Bengal staining was normal.

## TEAR SUPPLEMENTATION

All patients were treated with artificial tears .of these 25 patients had preservative free artificial tears and rest had artificial tears with preservatives.

## AMNIOTIC MEMBRANE TRANSPLANTATION

5 patients belonging to severe dry eye category underwent amniotic membrane transplantation .the amniotic membrane was freshly harvested from the placenta of an elective caesarian delivery after screening for HIV and other transmissible disease. The amniotic membrane was washed with antibiotic solution also .

Eyes chosen for amniotic membrane transplant were Steven Johnson syndrome ,chemical burn ocular trauma and Ehler Danlos syndrome.

Symblepheron was released well in all the cases.

On further follow up the frequency of artificial tears significantly came down .Also there was much subjective improvement in the symptoms.

## Discussion

Successful management of dry eye depends on early diagnosis. Most of the patients in this group presented with symptoms of computer vision syndrome who worked for about 12-14 hours /day with the system. This suggest that people involved in the computer work developed symptoms of dry eye early. This is attributed to less blinking habits .

### so patients with CVS should be given the following guidelines :

correction of refractive errors  
frequent blinking  
use of humidifiers in the work placerecent  
schedule visual breaks  
increase water consumption to increase ocular hydration

among the symptoms found in our study foreign body sensation ,itching and burning sensation were more common. Recent study by Anshu sahia et al the common complaints were reduction in the vision,watering and ocular pain. It was also observed that post menopausal women are more prone for dry eye as aresult of decrease in the androgen, which protects against inflammation of the lacrimal gland .our study showed 28% of the females with dry eye belonged to the post menopausal category. In our study 20% of the patients belonged to post lasik dry eye category. Literature says that chronic dry eye persisting 6 months after LASIK was seen in 28% of Asia eyes compared to 5% of Caucasian eyes. This increase in incidence of dry eyes in asian eyes could be because of racial differences in eyelid and orbital anatomy ,tear film parameter and blinking dynamic and higher attempted refractive corrections in Asian eyes.

Patients with 20% autologous serum definitely showed improvement in the symptoms as well as in the objective improvement of TBUT aand schirmer' I .Similar studies done by Fox et al found that 15 of 15 patients with dry eye had improved subjective and objective scores after use of serum drops.

Limbal stem cell and amniotic membrane transplantation is very useful in severe dry eyes caused due to ocular surface disorder such as chemical burns and steven Johnson syndrome.In our study 9 patients under went limbal stem cell graft . photophobia and other syndromes improved in 6 patients .66.6 % was the success rate. Another study conducted by Kwitko and co- authors showed success rate of 91.6 % of the cases. This difference could be because of the less no of cases in our study group.

## Conclusion

Incidence of dry eye is becoming more common in the young age group in people who are in the soft ware profession ,computer vision syndrome and post LASIK being the cause.

Females are more commonly affected .in this study the increase in incidence among the females is because they are associated with systemic disease( Rheumatoid Arthritis) more commonly than males.Among the symptoms of dry eye like foreign body sensation and burning sensation,itching and eye strain or fatigue is becoming more common. Any patients with symptoms of dry eye or allergy and all patients above 50 years of age ,all women in the menopausal age group , all patients with systemic diseases and all patients working in environment prone to dry eye should be subjected to shirmer's I test as a routine examination to diagnose the sub clinical cases.

In this study it is observed that patients with systemic diseases especially sero positive rheumatoid arthritis who are on regular lubricants topically and systemic medications do not develop corneal complications .Hence it is inferred that early diagnosis of dry eye and its systemic associations is important to prevent corneal complications.

Punctual occlusion , preservative free artificial tears and autologous serum are very effective modes of treatment for severe and moderate cases of dry eye .Limbal stem cell group and amniotic membrane transplantation yield promising results and is a boon to patients with secondary Limbal stem cell deficiency and ocular surface disorders like chemical burns and Steven Johnson 's syndrome .

Recent research linking the disturbance in the androgenic hormone,control of inflammation in the lacrimal gland and the ocular surface have suggested that androgen hormone replacement may be beneficial in the treatment of dry eye. Also nutritional therapy like oil of promise and flax seed oil have been suggested to be helpful in relieving symptoms of dry eye.

Essential fatty acids of the omega -3 and omega -6 categories have been suggested for use in dry eye due to lipid deficiency.

All the above needs more clinical trail to be conducted for use in routine clinical practice.

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