

**Original Research Article**

# **Effective Treatment Protocol for Dry Eye Disease in Rural Population (Nizamabad District, Telangana State)**

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## **Abstract**

**Background:** Dry eyes are common occurrence in rural population affecting both male and female above 40 years, especially those involved in agriculture related occupation. Pathophysiology of dry eyes is either due to increased evaporation or decreased tear production dry weather, dust, exposure to toxic substances, nutritional disorders, improper personal hygiene are contributing factors. Symptoms are foreign body sensation, blurring of vision, burning sensation, intolerance to wind beside easy fatigability of eyes.

**Aim:** Aim was to design effective treatment protocol for treating poor patients from rural areas with dry eye disease (DED).

**Materials and methods:** Total 92 patients 49 males and 43 females were followed up to 1 year with initially two visits at 15 days interval, thereafter at 3 months interval. Patients were instructed to report back in case of worsening of symptoms.

**Results:** 78 were comfortable and symptoms are improved. 6 patients there was not much improvement in signs and symptoms. In three patients symptoms worsened with medication and these 9 patients were referred to higher centers for further treatment. 5 patients were lost to follow up.

**Conclusion:** Level I and II DED in rural population is best treated with hydroxyl methyl cellulose eye drops 4 times were more depending on symptoms along with anti-inflammatory agents initially for two weeks, offers good relief from symptoms and improved compliance. Patients were symptoms free for about one year with medication.

## Key words

Dry eye disease, Tear film, Artificial tears.

## Introduction

Dry eyes are common occurrence in rural population affecting both male and female above 40 years, especially those involved in agriculture related occupation [1]. Pathophysiology of dry eyes is either due to increased evaporation or decreased tear production dry weather, dust, exposure to toxic substances, nutritional disorders, improper personal hygiene are contributing factors [2]. Symptoms are foreign body sensation, blurring of vision, burning sensation, intolerance to wind beside easy fatigability of eyes [3].

Dry eyes are frequent cause of eye irritation with burning sensation among people engaged in outdoor activities such as formers, agriculture labors and construction workers. Significant association is found with exposure to sunlight, excessive wind and air pollutants [4]. DED results in breakdown of natural layers of tears which coats anterior surface of the eyes [5].

Patients attending the eye op in Government General Hospital, where present study is conducted belong to low socio economic status and cannot afford costly medication for prolonged periods for dry eye disease. Hence the present study is conducted to find out improved compliance by replacing costly synthetic polyvinyl alcohol preparations with Hydroxy Propyl Methyl Cellulose preparations, which are economical and can be afforded for prolonged use.

## Aim

- To improve patient compliance for treatment of DED among rural population.

## Materials and methods

Total 92 patients 49 males and 43 females were followed up to 1 year with initially two visits at 15 days interval, thereafter at 3 months interval. Patients were instructed to report back in case of worsening of symptoms.

For all the patients refractive errors are corrected with spectacles. Those who are not willing to wear spectacles are given protective glasses. Pts are educated and counseling given regarding eye hygiene, nutrition and preventive care.

Detailed slit lamp examination was performed to rule out lid, conjunctiva and corneal pathology. Tears film integrity was assessed by BUT (<10 SEC). Fluorescein 2% staining was done to rule out corneal surface involvement. Schirmers test to assess the severity of dryness was as per **Table – 1**.

**Table – 1:** Schirmers test to assess the severity of dryness

Normal	11-25mm
Borderline	5-10mm
Severe	<5mm

## Inclusion and exclusion criteria

Patients with severe dry eyes, gross lid abnormalities, dry eyes secondary to systemic illness, who are on medication that causes dryness of the eyes, age above 60 years were not included in this study.

Patients of both the sex, above 40 yrs attending eye op from rural areas, who are engaged in agriculture activities of low socioeconomic strata with dry eye symptoms were included in this study.

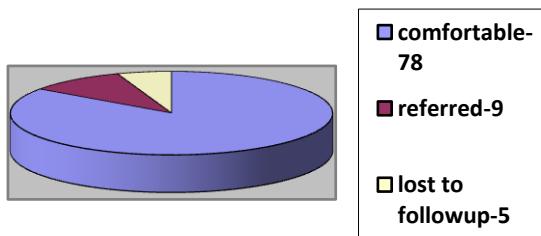
## Results

A total of 92 patients selected for the study, of which 49 were males and 43 females, belonging to level I or II severity.

All the patients were put on tetracycline eye ointment topically and NSAID drugs for 2 weeks to treat lid diseases like meibominitis and blepharitis, along with Hydroxy Propyl Methyl Cellulose 0.3% (HPMC) topical preparation, 1 to 2 drops in each eye, minimum 4 to 6 times a day depending on the symptomatology. Gel preparations were added in patients reporting severe irritation.

78 were comfortable and symptoms are improved. 6 patients there was not much improvement in signs and symptoms. In three patients symptoms worsened with medication and these 9 patients were referred to higher centers for further treatment. 5 patients were lost to follow up (**Figure – 1**).

**Figure - 1:** Showing improvement from DED symptoms after treatment.



## Discussion

Dry eye is a leading cause of ocular discomfort in rural areas with a prevalence rate of 17.77% in outdoor workers. There is a good association between exposure to sunlight, excessive wind and air pollution.

In the present study we found that artificial eye drops are helpful in controlling the symptoms of grade I and II of DED, lid hygiene along with artificial tears are helpful in treatment of hyper evaporative dry eyes is reported in the study of Messener EM, et al. [6].

Symptoms in DED are mainly due to breakdown of natural layers of tear film, and compliance will be improved if stability is restored by using artificial tears. Doubghty MJ reported in their study, that artificial eye drops will cause predictable increase in tear film stability [7].

Treatment with anti inflammatory agents in conjugation with eye drops is good protocol to control DED along with good compliance. Song JS et al, in their study used topical anti-inflammatory agents and preservative free artificial tears preferred at all levels of dry eyes [8].

## Conclusion

Level I and II DED in rural population is best treated with hydroxyl methyl cellulose eye drops 4 times are more depending on symptoms along with anti-inflammatory agents initially for two weeks, offers good relief from symptoms and improved compliance. Patients were symptoms free for about one year with medication. Few patients were proceeded to chronic disease. Hence, we concluded proper eye hygiene and avoidance to exposure to irritating factors, hydroxy methyl cellulose preparation gives sufficient long term relief in majority of the patients.

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