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Original Article

Prevalence of dry eyes in type II diabetic patients- A clinical study

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ABSTRACT:
Background: The present study recorded prevalence of dry eyes in type II diabetic patients. **Materials & Methods:** 189 type II diabetes mellitus patients underwent fasting and random blood glucose assessment. Dry eye was confirmed by tear film break up time (TBUT) and Schirmer's test. **Results:** Out of 109 males, 34 (31.1%) and out of 80 females 20 (25%) had dry eyes. The difference was significant (P< 0.05). Severity found to be mild in 21, moderate in 28 and severe in 5 patients. The difference was significant (P< 0.05). **Conclusion:** Dry eyes were mostly observed in males as compared to females. The prevalence found to be 31.2%.
Key words: Dry eyes, Diabetes, Prevalence

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INTRODUCTION

Diabetes has become a growing major public health problem both in developing and developed countries and its global prevalence will be expected to reach 380 million by 2025.[1] Some studies showed that type 2 diabetes (T2D) is one of the risk factor for dry eye disease (DED) and as the prevalence of T2D increases the development of DED may increase. The prevalence of DED has been reported up to 54.3% in diabetic patients.[2]

Risk factors for symptomatic dry eye disease are Keratitis, allergy, contact lens, several drugs, thyroid disease, Lasik, Pterygium and smoking. Keratitis is an inflammation of the cornea, the cornea is the outermost part of the eye that covers the pupil and iris. The most common causes of keratitis are infection and injury. Bacterial, viral, parasitic and fungal infections can cause keratitis.[3] An infectious keratitis can happen after an injury to the cornea. But an injury can inflame the cornea without a secondary infection occurring. People who wear contact lenses are at increased risk for infectious keratitis. Lens wear should stop immediately if a person suspects that he or she is developing an eye infection.[4]

Ocular surface disease in diabetes is characterized by reduced corneal sensitivity and by alteration in tear quantity and quality. Diabetic patients might exhibit dry eye symptoms probably due to neuropathy, metabolic dysfunction, or abnormal lacrimal secretions.[5] Damage to the microvasculature of the lacrimal gland accompanied by autonomic neuropathy might impair lacrimation in persons who suffer from diabetes for a long time. Patients with diabetic retinopathy do not complain of symptoms of dry eye, but they have pathological and clinical signs of Keratoconjunctivitis Sicca.[6] The present study recorded prevalence of dry eyes in type II diabetic patients.

MATERIALS & METHODS

The present study was conducted in the department of Ophthalmology among 189 type II diabetes mellitus patients. Ethical clearance was taken from institutional ethical committee. All were informed regarding the study and written consent was obtained.

Data related to patients such as name, age, gender etc. was recorded. All patients underwent fasting and random blood glucose assessment. Dry eye was confirmed by tear film break up time (TBUT) and Schirmer's test. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of subjects

Total- 189		
Gender	**Males**	**Females**
Number	109	80

Table I shows that out of 189 patients, males were 109 and females were 80.

Table II Prevalence of dry eyes in type II DM patients

Gender	Prevalence	Percentage
Males	34	31.1%
Females	20	25%

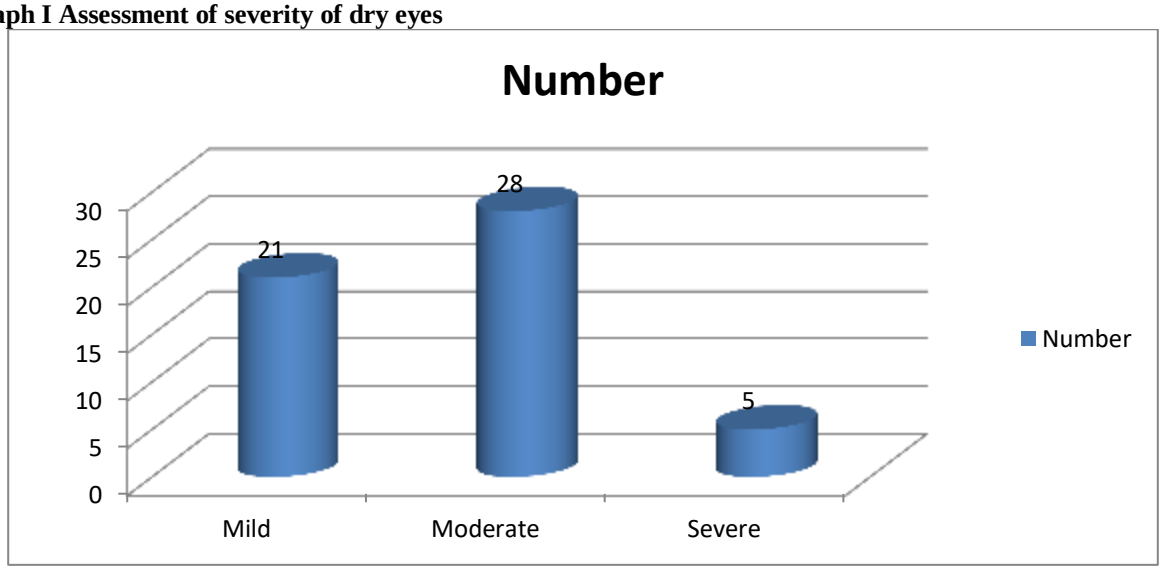
Table II shows that out of 109 males, 34 (31.1%) and out of 80 females 20 (25%) had dry eyes. The difference was significant (P< 0.05).

Table III Assessment of severity of dry eyes

Severity	Number	P value
Mild	21	0.02
Moderate	28	
Severe	5	

Table II, graph I shows that severity found to be mild in 21, moderate in 28 and severe in 5 patients. The difference was significant (P< 0.05).

Graph I Assessment of severity of dry eyes



DISCUSSION

DED is a multifactorial disease characterized by a progressive dysfunction of meibomian gland which leads to decreased tear production and /or increased tear evaporation, respectively. DED is manifested with signs and symptoms of ocular discomfort such as stinging, sandy sensation, feeling of dryness, itching and redness which may cause serious irritation to the cornea.[7]

DED affects the quality of life of patients by inducing ocular discomfort, visual disturbances and ultimately blindness in diabetics people which was reported in the age of 20-74 years and a study reported approximately 20% of dry eyes occurred in individuals with T2D aged between 43 and 86 years. Furthermore significant relationship between dry eyes and diabetes were documented from hospital based studies.[8] The prevalence of this creating awareness among the public to be taken care of their life style changes, westernized diet and medications, usage of electronic items like computer etc as well as hormonal status which may

increase the risk for both diabetes and DED. In recent years, diabetic patients have also been reported for corneal complications including superficial punctuate keratopathy, trophic ulceration, and persistent epithelial defect. The present study recorded prevalence of dry eyes in type II diabetic patients.

In present study, out of 189 patients, males were 109 and females were 80. Out of 109 males, 34 (31.1%) and out of 80 females 20 (25%) had dry eyes. Seifart et al[9] in their study compared 92 patients with diabetes types I and II and aged from 7 to 69 years with a group of normal healthy controls comparable in number, age and sex. The results show that 52.8% of all diabetic subjects complained of dry eye symptoms, as against 9.3% of the controls. They concluded close monitoring of diabetic patients and good blood sugar regulation is important for the prevention of dry eye syndrome and retinopathy

We found that severity found to be mild in 21, moderate in 28 and severe in 5 patients. Jin et al[10] found that 100 patients with type II diabetes were compared with 80 normal healthy controls. In this study TBUT was significantly lower in type 2 diabetic patients. Manaviat et al[11] in their study found that of 199 subjects, 108 patients (54.3%) suffer from dry eye syndrome. Although dry eye syndrome was more common in older and female patients, this association was not significant. But there was significantly association between dry eye syndrome and duration of diabetes (P = 0.01). Dry eye syndrome was more frequent in diabetic patients with DR (P = 0.02). DR was found in 140 patients (70.35%), which included 34 patients (17.1%) with mild non proliferative DR (NPDR), 34 patients (17.1%) with moderate NPDR, 22 patients (11.1%) with severe NPDR and 25 patients (25.1%) with proliferative DR (PDR). There were significant relation between age, sex and duration of diabetes and DR.

Dry eye syndrome has many causes. One of the most common reasons for dryness is aging process. The mechanism responsible for dry eyes is unclear, but autonomic dysfunction may be responsible. Aldose reductase, the first enzyme of the sorbitol pathway, may also be involved. The oral administration of aldose reducetase inhibitors has been shown to improve the tear dynamics significantly.[12]

CONCLUSION

Authors found that the dry eyes were mostly observed in males as compared to females. The prevalence found to be 31.2%.

REFERENCES

1. Sahai A, Malik P. Dry eye: prevalence and attributable risk factors in a hospital based population. India J Ophthalmol 2005; 53:87–91.
2. Guo B, Lu P, Chen X, Zhang W, Chen R. Prevalence of Dry Eye Disease in Mongolians at High Altitude in China: The Henan Eye Study. Ophthalmic Epidemiol 2010; 17(4): 234-241.
3. El Haddad OA, Kamal MS: Prevalence and risk factors for diabetic retinopathy among Omani diabetics. Br J Ophthalmol. 1998; 82: 901-906.
4. Nathan DM, Singer DE, Godine JE, Hodgson Harrington C, Permulter LC: Retinopathy in older type II diabetics: association with glucose control. Diabetes. 1986; 35: 797-801
5. Fujishima H, Shimazaki J, Yagi Y, Tsubota K: Improvement of corneal sensation and tear dynamics in diabetic patients by oral aldose reductase inhibitor, ONO-2235: A preliminary study. Cornea. 1996; 15: 368-372.
6. Yokoi N, Mossa F, Tiffany JM, Bron AJ: Assessment of Meibomian Gland Function in Dry Eye Using Meibometry. Arch Ophthalmol. 1999; 117: 723-729.
7. Riordan-Eva , Asbury T, Whitcher JP: Vaughan and Asbury's General Ophthalmology. USA, McGraw-Hill Medical 2003; 308-310.
8. Khurana AK, Chaudhary R, Ahluwalia BK. A new criteria to diagnose and grade dry eye. India Ophthalmology Today 1993;71–3.
9. Seifart U, Strempel I: The dry eye syndrome and diabetes mellitus. Ophthalmologe. 1994; 91 (2): 235-239.
10. Jin J, Chen LH, Liu XL, Jin GS, Lou SX, Fang FN: Tear film function in non insulin dependent diabetics. Zhonghua Yan Ke Za Zhi. 2003; 39 (1): 10-3.
11. Manaviat MR, Rashidi M, Afkhami-Ardekani M, Shoja MR. Prevalence of dry eye syndrome and diabetic retinopathy in type 2 diabetic patients. BMC ophthalmology. 2008; 8(1):10.
12. Segato I, Midena E, Grigoletto F, Zucchetto M, Fedele D, Piermarocchi S, Crepaldi G. The epidemiology and prevalence of diabetic retinopathy in the Veneto region of north east Italy. Diabetic Med. 1991; 8: 11-6.