



Original Research Article

Study of Ocular Complications of Diabetes Mellitus in Patients Attending in Tertiary Care Hospital at S.K.M.C.H., Muzaffarpur, Bihar

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Abstract

Objectives: *There is an increasing prevalence and incidence of diabetes mellitus with advancing age, adult diabetics are also at risk of vision threatening retinopathies. A fourth of the world's blind population resides in India. Ocular complications due to diabetes mellitus manifests in various ways, but manifestations of diabetes other than diabetic retinopathy are easily overlooked. The aims and objectives of this present study were to determine the common ocular complications in patients suffering from diabetes.*

Materials and Methods: *A total of 72 patients with ocular complications of diabetes in one or both eyes attending in ophthalmology outpatient department were included in the study.*

Results: *Out of the 72 patients 28 patients (38.89%) were belonged to be in the age group of 51-60 years followed by 22 patients (30.50%) was from 61-70 years. The average age of the patients studied was 51.6yrs. 48 (66.67%) patients were male while 24 (33.33%) patients were female. Retinopathy was the most common ocular complication occurring in 47 (65.27%) diabetes mellitus patients. The prevalence of cataract was in 17 patients (23.61%) followed by Primary open angle glaucoma 01 (1.38%) and extra ocular muscle palsy 01(1.38%). We found significant association between sex and ocular complication of diabetes mellitus wherein cataract was more common in female diabetes patients 11(64.70%) as compared to male patients 06 (35.3%). The prevalence of NPDR was higher in male diabetes patients 32 (68.1%) than in female diabetes patients 15(31.9%). Our study showed a higher prevalence of DR amongst male subjects. The most notable complication seen with increased duration of diabetes was non proliferative diabetic retinopathy. A non significant association was noted between ages of the diabetic patient and associated ocular complication.*

Conclusion: *Diabetic retinopathy was the commonest ocular complication of diabetes, followed by cataract and primary open angle glaucoma. The prevalence of diabetic retinopathy was higher in patients with longer duration of diabetes.*

Keywords: *Diabetes, Ocular complications, Diabetic retinopathy, cataract.*

Introduction

Prevalence and incidence of diabetes mellitus increases with advancing age. The number of

people over 60 years of age in India will increase from 76 million in 2000 to 137 million by 2021. It is proposed that the diabetes patients in India will

increase from 19 million to 57 million between 1995 and 2025 (195% increase) and young diabetes individuals are increase risk of early vision threatening retinopathies.

A fourth of the world's blind population about 9-12 million people is estimated to be resides in India. Increase in chronic disease prevalence and their complications will add hugely to this number. As rural areas in India rapidly urbanize, persons are more prone for diabetes to reach epidemic proportions and there are increase possibility of visual impairment.

The most important complications include xanthelasmata, blepharitis, recurrent hordeolum, eczema in eyelids, microaneurysms, venous dilatation in conjunctiva in folds of Descemet's membrane, neurotrophic keratitis in cornea, iris pigments on lens, rubeosis iridis in iris, rigid pupil, light near dissociation in pupils, cataract, refractive errors in lens, vitreous hemorrhage, asteroid hyalosis in vitreous, Diabetic retinopathy, retinal vein occlusion, Lipaemia retinalis.

In retina, Ischemic papillitis, Optic atrophy in Optic nerve, Palsy caused by 3rd, 4th, 6th cranial nerve involvement in Extra-ocular Muscles, Mucormycosis in orbit, Primary Open angle glaucoma, Neovascular glaucoma in Intra-ocular pressure.

Materials and Methods

Present study was conducted in the Department of Ophthalmology, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar **during the period of May 2019 to October 2019**. A total of 72 patients suffering from type-2 diabetes mellitus, aged between 40 to 75 years attending in ophthalmology OPD presenting with symptoms with ocular complications in one or both eyes due to diabetes mellitus were included in the Study.

All known cases of type-1 and type -2 diabetes mellitus on regular treatment as well as those who have discontinued treatment or not on regular treatment were included in the study, Cases of Gestational diabetes mellitus and known cases of hypertension were excluded from the study.

After detailed medical and surgical history a thorough clinical examination was done. Ocular examination was done by Standard techniques and equipment. Detailed examination of the anterior segment and extra ocular movements were checked. Retinal evaluation was done using a direct or indirect ophthalmoscope or 90D lens on slit lamp biomicroscopy or by fundus photography. Grading of the retinopathy and the presence of macular edema were noted. Corneal sensations were checked using a wisp of sterile cotton. Visual acuity assessment and refraction Slit lamp examination were done. All the Data was noted using a predesigned Performa.

Routine laboratory investigations were done in every cases (blood sugar fasting and pp, Hba_{1c}, routine urine, viral marker, cbc, lft, kft and tsh).The diagnosis of the ocular complication was done and treated accordingly.

Results

Out of the 72 patients 28 patients (38.89%) were belonged to be in the age group of 51-60 years followed by 22 patients (30.50%) was from 61-70 years. The average age of the patients studied was 51.6yrs. 48 (66.67%) patients were male while 24 (33.33%) patients were female. 64 patients were on oral anti diabetic treatment and 08 patients were on insulin.

Table-1 shows total no. of patients according to Age

Age of patients in years	Total no. of patients	Percentage
40-50	8	11.11
51-60	28	38.89
61-70	22	30.55
More than 70	14	19.44
Total (n)	72	

Table-2 shows total no. of patients with ocular complication and their frequency of occurrence

Ocular complication	Total no. of patients (n=72)	Percentage
Primary open angle glaucoma	1	1.38
Cataract	17	23.61
Recurrent styes	1	1.38
Transient change in refraction	1	1.38
Recurrent Lacrimal abscess	1	1.38
Extra ocular muscle palsy	2	2.77
Retinopathy	47	65.27
Optic Atrophy	1	1.38
Branch retinal vein occlusion	00	00
Orbital cellulitis	00	00

Retinopathy was the most common ocular complication occurring in 47 (65.27%) diabetes mellitus patients. The prevalence of cataract was in 17 patients (23.61%) followed by Primary open angle glaucoma 01 (1.38%) and extra ocular muscle palsy 01(1.38%).

Table-3 shows total no. of patients with ocular complication according to sex difference

Ocular complication	Male	Female
Cataract (n=17)	6 (35.3%)	11(64.7%)
NPDR(n=47)	32(68.1%)	15(31.9%)

We found significant association between sex and ocular complication of diabetes mellitus wherein cataract was more common in female diabetes patients 11(64.70%) as compared to male patients 06 (35.3%). The prevalence of NPDR was higher in male diabetes patients 32 (68.1%) than in female diabetes patients 15(31.9%). Our study showed a higher prevalence of DR amongst male subjects.

Significant correlation was found between duration of diabetes and associated ocular complication. NPDR was seen in 45 (62.5%) patients with diabetes for 6-10 year duration.

Increased incidence of CSME was found as the duration of diabetes increased 4 (5.5%) of patients with diabetes in the duration of 6-10yrs while 7 (9.7%) of patients with diabetes in the duration range of more than 10 years had CSME (Clinically significant macular oedema).

Patients with controlled diabetes or taking regular treatment had lower prevalence of NPDR when compared to the patients not taking treatment regularly. A non significant association was found in treatment of diabetes and severity of NPDR.

Discussion

In the present study, we found retinopathy was the most common ocular complication occurring in diabetes subjects (65.27%). The prevalence of cataract was 23.61% followed by Primary open angle glaucoma (1.38%) and extra ocular muscle palsy (1.38%).

The prevalence of diabetic retinopathy varied from 26.4% in persons who had diabetes for less than five years to 76.2% in persons who had diabetes for 15 or more years in a study conducted by Klein et al. Findings similar our present study regarding primary open angle glaucoma prevalence was found in studies conducted by Dobson and Girard.

Diabetes is the underlying cause in 25-30% of patients aged 45 years and older who develop acute extra ocular muscle palsy. In a study by Watanabe K, 1% of patients with diabetes were found to have cranial nerve palsies, compared with only 0.13% of control subjects.

In our study most of the patients were found to be in the age group of 51-60 years were 38.89%. The average age of the patients studied was 51.8 yrs. A non significant association was found between age group and ocular complication of diabetes mellitus. Comparable age distribution was found in a study Raheja.

In the present study 48 patients were male while 24 patients were female similar sex distribution where in males outnumbering females was found in a study, conducted by Muawyah.

We found significant association between sex and ocular complication of diabetes mellitus where cataract was more common in female diabetes patients (64.70%) as compared to male patient (35.31%). The prevalence of NPDR was higher in male diabetes patients (68.1%) than female diabetes patients (31.9%).A increased prevalence of cataract was reporter in female diabetes patients in a study by Raman.

Our study showed a higher prevalence of DR amongst male subjects, Wisconsin Epidemiological study of Diabetes Retinopathy found higher prevalence of Diabetic Retinopathy in females. This discrimination may be because of low female population in the studied group. A comparable result with regard to increased incidence of diabetic retinopathy in male patients was found in a study by Sunil Gupta.

Characteristic diabetic cataract was found in only 3 (17.64%) of patients with cataract. The highest

incidence of cataract was found in the 41-45 yrs age group. Cataract was more common in female patients (64.70%). Increased incidence of cataract in female diabetic patients was also noted similarly in a study by Harding et al and Raman.

In this study we found a significant correlation between duration of diabetes and associated ocular complication. The most notable complications seen with increased duration of diabetes was NPDR seen in 62.5% patients with diabetes for 6-10 year duration. Increased incidence of retinopathy with increase in duration of diabetes was noted in studies conducted by Klein et al and Yank et al.

Increased incidence of CSME was noted as the duration of diabetes increased 5.5% of patients with diabetes in the duration range of 6-10yrs had CSME while 9.7% of patients with diabetes in the duration range of more than 10 years had CSME. Similar increased incidence of CSME with increased duration of diabetes was noted in a study by Varna et al.

Retinopathy occurred more frequently among those in the irregular follow-up, noted that patients with good diabetic control had lesser prevalence of NPDR when compared with subjects with bad diabetic control. Diabetes control and complication trial and United Kingdom prospective diabetic study both showed that intensive blood glucose control retards the rate of progression of diabetic retinopathy.

We found a significant association between ocular complication of diabetes and presence of family history of diabetes. 06 patients had positive family history in this study. Munen also noted that familial inheritance of diabetes is a well known complication

Conclusion

Diabetic retinopathy was the commonest ocular complication of diabetes, followed by cataract, primary open angle glaucoma and extra ocular muscle palsy. The prevalence of maculopathy was greater in subjects with type -2 diabetes mellitus. Prevalence of diabetic retinopathy was higher in

patients with longer duration and with poor control of diabetes.

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