

A cross sectional study of magnitude of diabetic retinopathy in outpatients presenting with cataract in a secondary care hospital

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Abstract

Introduction: Patients with cataract most often have retinal pathology which may affect the visual prognosis and outcome following cataract surgery. Diabetic retinopathy and age-related macular degeneration are both age dependent diseases of retina which manifest around the same age as cataract. Also, the occlusive diseases affect the patients in the senile cataract age group. **Materials and Methods:** This study was a Cross Sectional Study conducted in the Department of Ophthalmology, Govt Medical College Baramulla for a period of one and half years from January 2020 to June 2021. Around 900 patients with complaints of defective vision who attended the outpatient department and diagnosed to have cataract are screened. Among them 100 patients were found to have posterior segment pathologies. Patients with normal posterior segment, patients with glaucoma and patients with vitreoretinal diseases other than diabetic retinopathy were excluded from the study. **Results:** In our study 40% were found to have diabetic retinopathy of various stages. There is a significant association of NPDR with respect to CSME and there is highly significant association ($p < 0.01$) of disease progression to advanced diabetic eye disease after the disease enters the PDR stage. **Conclusion:** There is a significant impact on vision secondary to vitreoretinal diseases which show increase in incidence with age. The more severe the diabetic retinopathy, the worse is the visual prognosis. In cataract patients, early detection and prompt treatment of retinal diseases like diabetic retinopathies and vaso-occlusive diseases can prevent their progression and there by improve the visual outcome following cataract surgery.

Key Words: Diabetic retinopathy, NPDR, CSME, Glaucoma.

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Introduction

Patients with cataract most often have retinal pathology which may affect the visual prognosis and outcome following cataract surgery[1]. Diabetic retinopathy and age-related macular degeneration are both age dependent diseases of retina which manifest around the same age as cataract. Also, the occlusive diseases affect the patients in the senile cataract age group. Risk factors associated with Diabetic Retinopathy[2].

HbA1c is glycosylated haemoglobin, an Amadori product which is used as a marker to know the status of Blood sugar control over 3 months of duration[3]. In a study conducted by the diabetes Control and Complication Trial (DCCT) found that there was 35-40% reduction in the risk of retinopathy progression for every 10% decrease in HbA1c levels.

Similar study was done by the United Kingdom Prospective Diabetes Study (UKPDS) where type II DM patients were assigned to conventional and more intensive glycaemic control with either insulin or a sulfonylurea[5]. After 12 years, the rate of retinopathy progression was decreased by 21% in cases with laser photocoagulation and reduced by 29% in cases with intensive therapy compared to conventional therapy[6].

Materials and methods

Study design

A Cross Sectional Study

Study Location

This study was a Cross Sectional Study conducted in the Department

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Around 900 patients with complaints of defective vision who attended the outpatient department and diagnosed to have cataract are screened. Among them 100 patients were found to have posterior segment pathologies. Patients with normal posterior segment, patients with glaucoma and patients with vitreoretinal diseases other than diabetic retinopathy were excluded from the study.

All the patients fulfilling selection criteria were explained about the nature and purpose of the study and a written informed consent was obtained before enrolment. Patient's records were analysed for data according to age, sex and clinical diagnosis made after detailed fundus evaluation with binocular indirect ophthalmoscope, slit lamp using 20 D and 90 D lenses and fundus photography. Data was entered and analysed for simple frequency using SPSS version 21.0. Tests for significant inter group differences were performed using the chi square test with a $p < 0.05$ and $p < 0.01$ considered statistically significant and highly significant respectively.

Results

Table 1: Mean age among males and females

Sex	N	Minimum age	Maximum age	Mean age
Male	50	41	72	58.33
Female	50	38	73	60.85
Total	100	38	73	59.94

Table 2: Percentage of Various Grades of Non-Proliferative Diabetic Retinopathy

Non Proliferative Diabetic Retinopathy (NPDR)	Frequency	%
Mild	20	53
Moderate	10	26
Severe	4	11
Very Severe	4	11
Total	38	100

Table 3: Frequency and Percentage of Unilateral and Bilateral Clinically Significant Macular Oedema

Clinically Significant Macular Edema	Frequency	%
Nil	74	74
Right Eye	10	10
Left Eye	6	6
Both eyes	10	10
Total	100	100

Table 4: Frequency and Percentage of Proliferative Diabetic Retinopathy and That of Patients Who Had Progressed to Advanced Diabetic Eye Disease

Proliferative Diabetic Retinopathy (PDR)	Frequency	%	Frequency of Advanced Diabetic Eye Disease	%
No	84	84	96	96
Yes	16	16	4	4
Total	100	100	100	100

It is to be highlighted that all the patients who had progressed to ADED had uncontrolled diabetes of 10 or more years duration.

Discussion

The male to female ratio was 1:1. This was similar to the study done by Aimal Khan et al and Teshome T et al. The equal male and female attendance of hospitals for healthcare in developing countries contributes to the equal preponderance[7].

The mean age group in our study was 59.33 years in males while in females it was 60.85 years. This is similar to the findings from a study conducted by Onakpoya OH et al and can be compared to the study done in Malaysia where majority (61.9%) patients were above the age of 50 years. In our study 40% were found to have diabetic retinopathy of various stages[8].

In a study by Aimal Khan et al, he found 39.8% of patients to be suffering from diabetic retinopathy. This was also similar to the results from Nepal eye hospital where diabetic related conditions were most common cause for visiting the retina OPD[9].

In study conducted by Karki DB et al and Onakpoya OH et al diabetic retinopathy accounted for 9.7% and 9.6% retinal diseases respectively. This warrants timely screening, evaluation, treatment, follow up and education for diabetic related conditions. The rate of proliferative diabetic retinopathy varied from 2.0% in persons who had diabetes for less than five years to 15.5% in persons who had diabetes for 15 or more years. The Diabetes Control and Complications Trial (DCCT) demonstrated that a regimen of intensive therapy aimed at maintaining near normal blood glucose values

markedly reduces the risks of development or progression of retinopathy and other complications of insulin dependent diabetes mellitus. The occurrence of CSME, which is one of the major cause of decreased vision in diabetic was found to be 26%. In the study by Aimal Khan et al, CSME was found in 45% of patients. There was significantly high association ($p < 0.01$) of disease progression to advanced stage after the disease enter the PDR stage[10].

Conclusion

There is a significant impact on vision secondary to vitreoretinal diseases which show increase in incidence with age. The more severe the diabetic retinopathy, the worse is the visual prognosis. In cataract patients, early detection and prompt treatment of retinal diseases like diabetic retinopathies and vaso-occlusive diseases can prevent their progression and there by improve the visual outcome following cataract surgery.

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