



Magnitude of vision deterioration by diabetic retinopathy in patients visiting Holy Family Hospital Rawalpindi

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ABSTRACT

Objective: Main objective is to find out the frequency of patients presented with deterioration of vision due to diabetic retinopathy in different age groups in eye OPD Holy Family Hospital Rawalpindi.

Material and Method: A study of 100 patients of Diabetic Retinopathy visited eye OPD of Ophthalmology Department of Holy family Hospital, Rawalpindi during 1st May 2021 to 31 December 2021 were included in my study. Patients were exposed to various diagnostic procedures to confirm the presence of Diabetic Retinopathy and the diagnostic procedures include Ophthalmoscopy (direct and indirect), Slit lamp examination, Non Madratic Fundus Camera before Injecting IVB and LASER Treatment . According to severity of diabetic retinopathy, management was decided. Proper management and visual prognosis were explained to patient.

Results: Out of 200 diabetic patients who visited Holy family hospital Rawalpindi with complaint of vision deterioration I collected data of 100 patients of age group above 40 years depending upon the time available. 45 patients were Male and 55 were Female. Bilateral cases were most common. In classification wise distribution I found that 81.49% cases were of NPDR & 18.51% with of PDR. Furthermore 48% patients were already using oral medication for diabetic control, 21 % patient were using insulin and 19% were using both oral medication and insulin injections. , 12% patient weren't using any sort of medicine for diabetic control.

Conclusion: Diabetic Retinopathy is a serious event, which may result in complete blindness or vision loss. Early and proper diagnosis with prompt management is required in case of Proliferative Diabetic Retinopathy (PDR) before the progression of disease.

Keywords: Diabetic Retinopathy, PDR, NPDR, Holy family Hospital, Rawalpindi.

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INTRODUCTION

Diabetic retinopathy (DR) is conventionally defined as a disease of the microvasculature of the retina associated with diabetes type 1 ⁽¹⁾. Diabetic retinopathy is very common cause of blindness among individuals in 3rd to 8th decade of life. In early decades, 60% people with type 2 and all the patients with type 1 diabetes suffers from diabetic retinopathy. ⁽²⁾ .The Airlie House classification ⁽³⁾ which still used around the world successfully because of its simplicity. It proposed two major types of retinopathy, Non proliferative diabetic retinopathy (NPDR) and proliferative diabetic retinopathy (PDR). In NPDR the anomalies are retained within the retina and comprises generally of micro aneurysms, dot hemorrhages, hard exudates, edema and blot hemorrhages ⁽⁴⁾. PDR is defined as a condition where new blood vessels arise from the existing retinal vessels or from the optic disc. ⁽⁵⁾

The occurrence of DR is not only associated with tight blood sugar control but also depends on many other factors like HTN and hyperlipidaemia. The association of DR with hypertension has been reported frequently⁽⁶⁾ .similarly the association of DR with hyperlipidaemia has been comprehensively proved in the past.⁽⁷⁾⁽⁸⁾ .

METHODOLOGY

This Longitudinal study was conducted at Holy family Hospital, Rawalpindi during 1st May 2021 to 31 December 2021. Holy family Hospital is a tertiary care and a Government teaching hospital; caters to a class of patients that belong to lower and middle class social strata. 100 Diabetic Patients with various ages (above 40 years) who presented with complaint of vision deterioration were included in this study via convenient Non random sampling . The study was carried out after obtaining approval from the Holy family Hospital ethical review committee. As this was prospective study consent was also obtained from the patients included in the study. A self designed performa was filled by reviewing of clinical notes which entailed information about basic demographic information as well as detailed medical and ocular history.

Consecutive convenient Sampling technique. Diabetic patients of both sexes, above the age of 40 years with complaint of decreased vision were included in the study. However non-cooperative patients, patients who are not willing to be the part of research, patients with significant pathology such as Cataract, Corneal dystrophy, past or present keratitis, corneal leucomas affecting the visual axis, corneal degenerations, corneal ectasias, or uveitis were excluded from the study. All data was analyzed by using SPSS

Data Collection Tools and Procedure: Visual acuity charts (Snellen chart), Pinhole refraction , Autorefractor , Trial box and trial frame for subjective refraction , Slit lamp examination , Ophthalmoscope and Non mydriatic fundus camera.

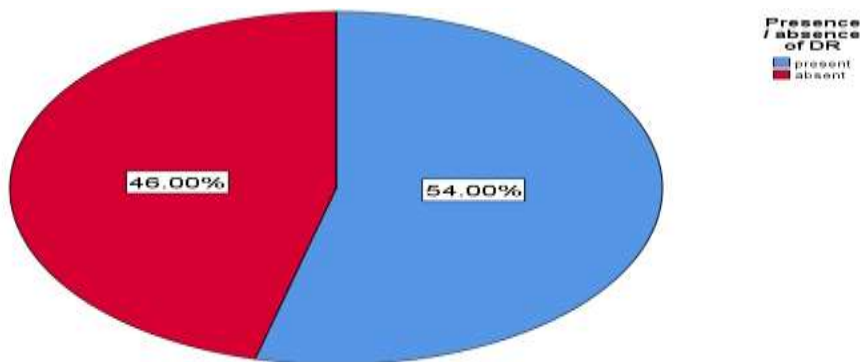
RESULTS:

Frequency of diabetic patient with complaint of deterioration of vision having diabetic retinopathy, their classification and different treatment procedures. Total of about 8000_10000 patients visited the eye OPD of Holy family hospital RAWALPINDI. I took sample of 100 patients with diabetes having decreased blurry vision and collected the data of all patients on specially designed performa.

Frequency of diabetic patients having Diabetic Retinopathy.

Out of 100 diabetic patients, 54 patients had DR while 46 patients didn't.

DIABETIC RETINOPATHY	No. of Patients
Present	54
Absent	46

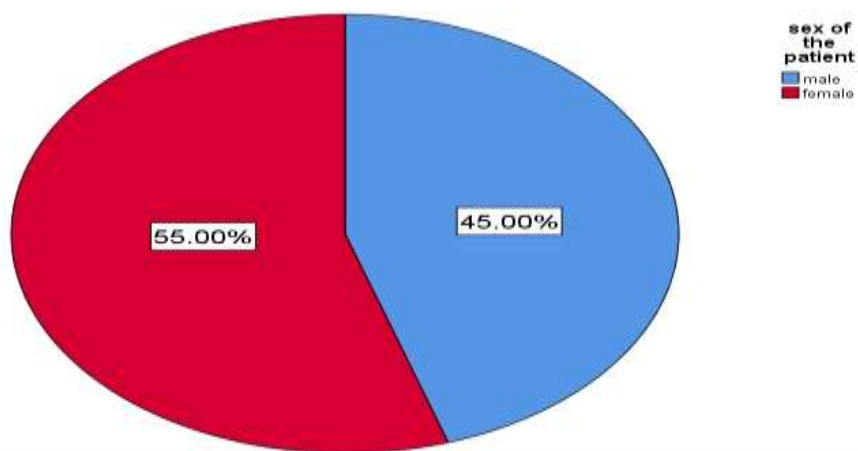


PIE chart showing %age of patients with diabetic retinopathy

Gender wise distribution of diabetic patients with vision complaints.

Out of total 100 patients , 45 are male patients and 55 are female cases of complaint of vision.

Gender	Vision deterioration complaint %
Males	45
Females	55

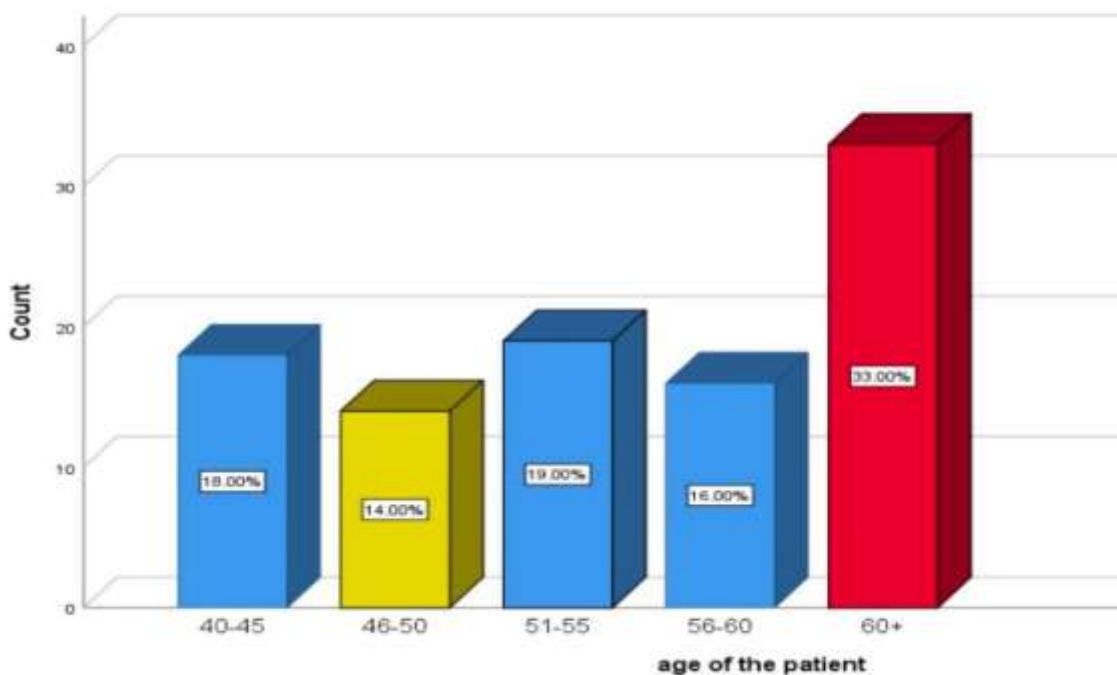


Pie chart showing the gender wise distribution

Distribution on the basis of age group:

Out of 100 patients, 18% belonged to age group between 40-45 years, 14% belonged to age group 56-50 years, 19% belonged to age group 51-55 years, 16% belonged to age group 56-60 years and the maximum percentage of 33% belonged to age patients above 60 years of age.

Age Group (years)	Patients %
40-45	18
46-50	14
51-55	19
56-60	16
60+	33

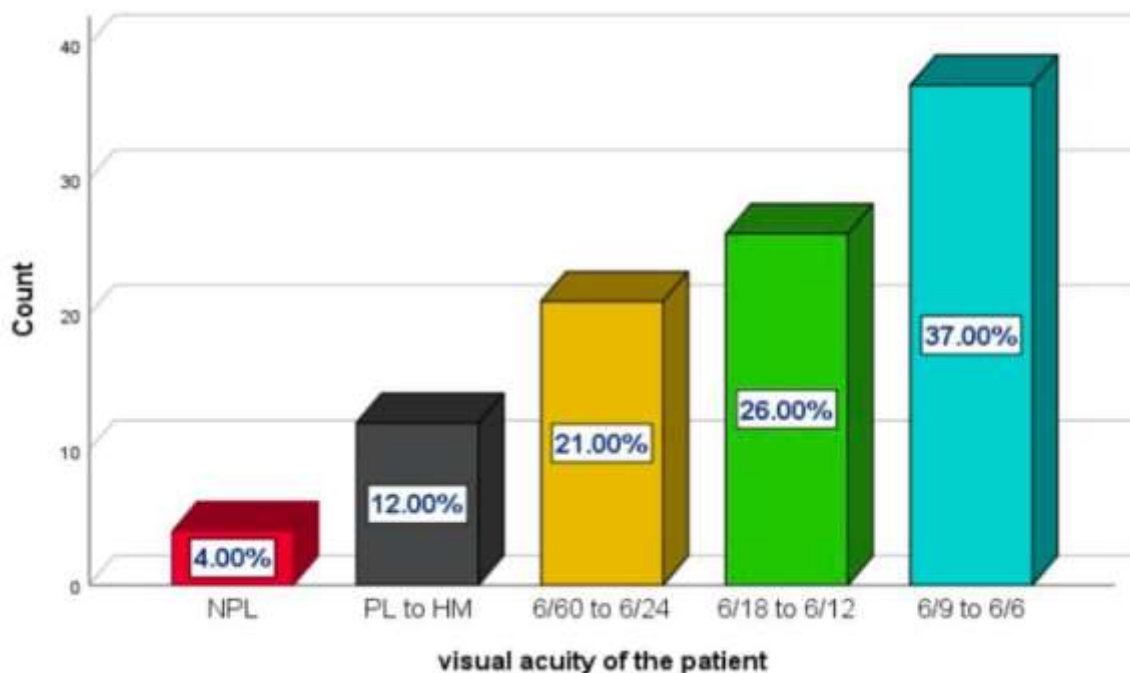


Bar chart showing the age wise distribution of patients

Distribution on the basis of degree of vision deterioration:

Out of 100 patients 4% had a vision deterioration up to perception of light only, 12% had visual acuity up to hand movement, 21% had visual acuity between 6/60 to 6 /24, 26% patients had visual acuity between 6/18 to 6/24 and 37% people have visual acuity between 6/9 to 6/6 range.

Visual acuity range	Patient %
6/6-6/9	37
6/12-6/18	26
6/24-6/60	21
PL-HM ⁺	12
NPL	4



Bar chart showing the visual acuity based distribution.

DISCUSSION:

Diabetic retinopathy is a set of changes that occurs on the retina due to prolonged uncontrolled diabetes and leads to decrease in vision and if it remains untreated, it can cause blindness. DR is a vision threatening disease. My study was designed to find out the frequency of patients with deterioration of vision due to diabetic retinopathy in different age groups. It proved to be a very potent source of vision loss among patients with prolonged uncontrolled diabetes especially of age group above sixty years. It was a hospital based study. Population based study is not possible due to limited sources and short period of time. The purpose of my study was to minimize the visual loss by diagnosing the patients at the early stage of the disease and providing prompt management according to the severity of disease. Detailed fundus examination was performed by non mediatric fundus camera, direct/indirect ophthalmoscopy, slit lamp etc. After detailed diagnoses, the patients were referred to the ophthalmologist for treatment. Patients with other disease like cataract, hypertension were subjected earlier for cataract surgery and other surgical procedures.

According to my study results, out of 100 patients during my research period, 45 were male patient and 55 were females with diabetes and complaint of decreased vision.

Bilateral cases were most common. In classification wise distribution I found that 81.49% cases were of NPDR while 18.51% cases were of PDR. My study results are retrospective to study which was done Zhang X , Saadine JB, Chou CF in 2010⁽⁹⁾. According to their studies the frequency of diabetic retinopathy was almost as significant as indicated in my results.

Other studies were conducted that traced the frequency of visual impairment by diabetic retinopathy in different decades. A study by Leasher JL, Bourne RR, Flaxman traced the increasing cases of vision deterioration in two decades ⁽¹⁰⁾ and concluded that on a global level, in 2010, out of overall 32.4 million blind and 191 million visually impaired people, 0.8 million were blind and 3.7 million were visually impaired because of DR, with an alarming increase of 27% and 64%, respectively, spanning the two decades from 1990 to 2010.

Another study was conducted by Vujosevic S and Aldington SJ in 1990 ⁽¹¹⁾ that emphasized on early screening and retinal imaging significance in prevention of both blindness and vision deterioration worldwide. My study is also based on the retinal imaging by non mydriatic fundus camera for fundus evaluation as suggested in that study. However my study didn't leaned towards cardiovascular disorder associations with DR as Vujosevic S and Aldington SJ study did.

One study conducted on an international level by Yang QH Zhang Y in 2019⁽¹²⁾ showed the frequency of diabetic retinopathy to be 28% in Asia, moreover the frequency of PDR was found to be 6%. These finding are very close to the results of my studies that showed out of hundred patients 10 patients had proliferative diabetic retinopathy.

CONCLUSION:

Diabetic retinopathy is a serious event, which may result in complete blindness or vision loss. Early and proper diagnosis with prompt management is required in case of severe NPDR and proliferative diabetic retinopathy (PDR) before the progression of disease. In this study most of the patients have DR bilaterally. From this study, it is concluded that approx. females (55%) are more affected than males (45%). Mostly patients are presenting with NPDR. Most commonly used surgical procedure is LASER photocoagulation in Holy Family Hospital, Rawalpindi. Most of the patients have guarded visual prognosis with respect to other disease (Mature cataract, Hypertension, Retinal Detachment).

LIMITATIONS:

Small sample size & short duration of study.

Noncompliance of the patient to Nystagmus, Amblyopia and Strabismus.

Non cooperative patients due tremors and compulsive head nodding due to oldage.

RECOMMENDATIONS:

The study showed that proper investigation of risk factors and proper evaluating procedures improve the likelihood of developing the later stage of disease so it should be emphasized on the detailed proper examination, diagnosis of Diabetic retinopathy and management of this disease. Further studies should be carried out in other hospitals with adequate and large sample size and longer study duration. There should be organizations for the awareness of risk factors of DR to prevent the severe vision loss. People should be made aware that if DR developed then its cure is present (Surgery is preferred) they can avoid the serious loss of vision by prompt diabetic control.

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