



## Prevalence of Diabetic Retinopathy in Diabetic Patients with Five Years' Duration Presenting in Eye OPD Nishtar Hospital, Multan.

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**Purpose:** To find out the prevalence of diabetic retinopathy in diabetic patients with five years duration of disease presenting to eye OPD, Nishtar Hospital Multan.

**Material and methods:** A prospective study was conducted at Ophthalmology department, Nishtar Medical College and Hospital, Multan. Duration of disease was eleven months starting from 1<sup>st</sup> February, 2013 to 31<sup>st</sup> December, 2013. A total of 223 patients with at least five years duration of diabetes were selected. Based upon findings, eyes were classified according to ETDRS study as having as mild to moderate NPDR, severe to very severe NPDR, Early to high risk PDR, advanced PDR and CSME with and without PDR.

**Results:** The mean age of patients with DR was 53.45±9.74. Most of the patients (71.30%) belonged to age group of 41-60 years. Male: female was 1:1.53. We also found out the relationship of DR to duration of DM. It showed that it increases with duration and was 92.31% after 15 years of disease. Main results of our study showed that 26.90% patients had no DR, 27.35% had mild to moderate NPDR and 2.24% had severe to very severe NPDR. Early to high risk PDR was found in 6.73% patients and advanced PDR was seen in 13.90% of patients. 19.73% patients presented with CSME with NPDR and 3.14% patients with CSME with PDR.

**Conclusion:** DR is more common in females and in age group of 41-60 years. Mild to moderate NPDR was most common presentation in our study.



### Introduction:

Diabetes mellitus is a major health issue all over the world. About 285 million people are suffering from this disease.<sup>1</sup> Pakistan also has similar story of DM. Consensus say that nearly 7 million diabetic patients are here in Pakistan and their number is expected to increase upto 13.8 million by 2030.<sup>2</sup>

Diabetes affects micro vessels and causes dysfunction of important organs of body including heart, kidneys and eyes. Although patients can develop eye complications like corneal problem, glaucoma, cataract and iris neovascularization but diabetic retinopathy is most common and blinding complication. It is the leading cause of blindness in diabetic patients of working age group<sup>3</sup>. It affects 28.7%<sup>4</sup> of diabetic population. It accounts for 15% cases of overall blindness.<sup>4</sup>

There are multiple risk factors for development of diabetic retinopathy including type and duration of diabetes, age, sex, hypertension, nephropathy, glycemic control and serum lipids.<sup>5</sup> Out of these, duration of diabetes is the single most important risk factor. It hardly develops within five years of start of disease.<sup>6</sup> Its incidence is 27% during initial 5-10 years while 71% if duration exceeds 10 years and 90-95% after 30 years of duration.<sup>7</sup> Previously no study shows duration wise incidence of diabetic retinopathy in our area of Multan. We conducted this study to fill this gap.

### Materials and Methods:

This study was carried out in Ophthalmology department of Nishtar Hospital Multan from February 2013 to December 2013. It was a descriptive cross sectional study. A total of 223 patients of ages between 20 to 80 years of either gender with at least five years of duration of diabetes were selected based upon non probability purposive sampling. Those with opaque media like corneal opacity or cataract which significantly precluded the proper detailed fundus examination were excluded from the study.

Proper permission was taken from institutional ethical committee to conduct this study. An informed consent was taken from the patients before the start of examination. After asking about bio-data, detailed history was taken. It included presenting complaints, systemic and family history and past treatment history. Then examination was done. Snellen's visual acuity and pupil reaction were checked. The anterior segment was also examined and pupils were dilated with 1 % Tropicamide eye drops. After dilatation, fundus examination was carried out on slit lamp biomicroscope with 90D lens by a single retinal specialist. Based upon findings, eyes were classified as having either no diabetic retinopathy, mild to moderate nonproliferative diabetic retinopathy (NPDR), severe to very severe NPDR, early to high risk

proliferative diabetic retinopathy (PDR), advanced PDR, Clinically significant macular edema (CSME) with and without PDR.

All the information was entered in a proforma, the copy of which was also provided to the patient.

All the data was entered and analyzed in computer software SPSS VERSION 15 to find out frequency and percentages of different presentations of diabetic retinopathy. Descriptive statistics were applied to find out mean and standard deviation for ages of patients.

### Results:

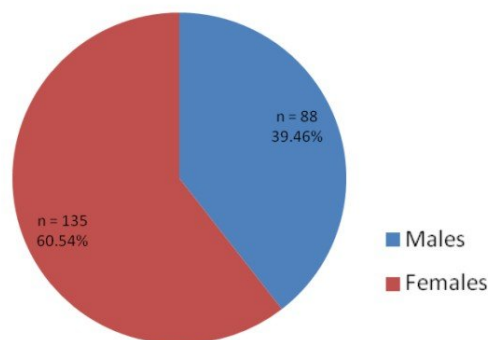
This study was completed in 11 months. A total of 223 patients were included randomly in this study with at least 5 years of duration of diabetes. Patients were divided into 3 groups to see the incidence DM in different age groups of population as shown in table I.

According to the table, majority of patients (71.30%) belonged to age group of 41-60 years. Descriptive statistics calculations showed that the mean age of patients was 53.45±9.74. However mean age of males was 54.14±9.54 and that of females was 53.00±9.87.

**Table 1**  
**Age wise distribution of patients**

Group No.	Age Range	Total Patients with DM		
		M	F	Total
I	20 -40 y	6	13	19
II	41 -60 y	61	98	159
III	61 -80 y	21	24	45

Graph I gives the gender distribution of patients. Females dominated the males with male: female ratio of 1: 1.53.

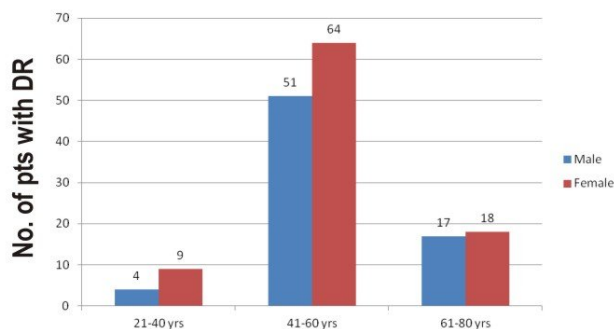






### Graph I

Out of 223, DR was found in 163 patients, 91 females and 72 males. Age and sex wise distribution of patients with DR is graphed out in graph II which shows that largest no of patients with DR were females belonging to age group of 41-60 years.



**Age groups in years**  
**Graph II**

Patients were divided into three groups depending upon the duration of DM. Further sex wise distribution of each group was done to see the effect of duration of DM in either sex. All this is summarized in table II which shows that the percentage of patients belonging to 5-10 years of duration is highest but at the same time, it also shows that the percentage of DR increases with the increase of duration of DM. However this increase in percentage of DR is more in males than in females.

**Table 2**  
**Relationship of DR to the duration of DM**

Group	Male			Female			Total		
	Total	DR	%age	Total	DR	%age	Total	DR	%age
5-10 y	48	34	70.83%	76	43	56.58%	124	77	62.09%
11-15y	20	18	90%	27	20	74.07%	47	38	80.85%
> 15 y	20	20	100%	32	28	87.5%	52	48	92.31%

Our main interest of this study was to find out proportion of various clinical presentations of DR. Results showed that most of patients (27.35%) presented with mild to moderate NPDR followed by no DR (26.90%) and then CSME with NPDR (19.73%). The overall result is shown in table III.

**Table 3**  
**Final Results**

Stage of Disease	Total No. of patients	%age
NO DR	60	26.90%
Mild to Moderate NPDR	61	27.35%
Severe to very Severe NPDR	5	2.24%
Early to High Risk PDR	15	6.73%
Advanced PDR	31	13.90%
CSME with NPDR	44	19.73%
CS ME with PDR	7	3.14%

### Discussion:

Diabetes Mellitus is a potentially disabling health problem because of its major complications. Among others, diabetic retinopathy is a potentially blinding complication which many affect the life quality of working as well as non working age groups.

In this study, the mean age of patients was 53.45±9.74 which matches with those of other national studies<sup>8,9</sup> and international studies<sup>10,11</sup>. This shows that DR is common in middle aged diabetic patients than the two other groups and this group constitutes the major working population of community.

Although the net number of female patients included in this study was higher than males with male:female of 1:1.53 but the percentage of patients with DR was significant lower (67.41%) than that of male patients (81.81%). This preponderance of DR in male patients is also evidenced by Kayani and his colleagues<sup>12</sup> and still the percentage of DR in our study is higher than all other studies conducted till yet in Pakistan. The two obvious possible reasons may be the difference is circumstances, in which these studies were done and the small sample size of our study. The people who were screened for DR had DM/DR already thus causing over representation of DR.

Besides age of patients, the duration of DM also affects the incidence and severity of DR. the results of our study bear the same relationship as documented in other studies<sup>7,13</sup>.

Although the same relationship is documented in other studies<sup>7,13</sup> but with percentages much higher than those studies. The huge difference is because of difference in sample sizes. Lack of uniformity in study designs, protocols of examination and documentation and circumstances may



explain the difference.

Regarding clinical representation, most prevalent group was mild to moderate NPDR (27.35%) followed by CSME with NPDR (19.73%) and then advanced PDR (13.90%) and then early to high risk PDR (6.73%). Our table clearly shows that NPDR is more common than PDR. This was also reported by Kayani and colleagues<sup>12</sup>. CSME is more frequently presented along with NPDR than PDR. We have classified the patients with DR according to clinical and treatment importance (ETDRS Study) that is why the results many differ from other studies of Pakistan yet the fact cannot be ignored that no other such study was ever conducted in our region which might provide a better comparison.

### Conclusion:

From this study, we concluded that:

1. DR is more common in females.
2. DR is more common in age group of 41-60 years.
3. Mild to moderate NPDR is the most common presentation of DR in patients with at least 5 years of duration.
4. The progression of stage of DR is more rapid in males than in females.
5. Incidence of DR increases proportionately with increase in duration of DM.

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