

Diabetic Retinopathy Prevalence in Patients with Established Diabetes Mellitus: A tertiary Care Hospital Study

MUHAMMAD JUNAID SETHI¹, UMER KHAN², NATASHA JUNAID³, NAZLI GUL⁴, ISHAN ULLAH⁵, MUHAMMAD ISRAR⁶

¹Assistant Professor Department Of Ophthalmology MTI Lady Reading Hospital Peshawar

²Associate Professor Department Of Ophthalmology MTI Hayatbad Medical Complex Peshawar.

³Department Of Community Medicine Khyber Medical College

⁴Assistant Professor, Department Of Ophthalmology Kth/Kmc.

⁵Consultant Ophthalmologist Dhq Hospital Timergara

⁶Consultant Ophthalmologist Dhq Hospital Bajawar

Corresponding author: Umer khan, Email: dromerkhan728@gmail.com

ABSTRACT

Background: Diabetic retinopathy is one of the microvascular consequences of this metabolic disorder.

Objectives: To establish a clear conclusion on the Prevalence of diabetic retinopathy in those who have already been diagnosed with diabetes.

Methods: This was a tertiary care hospital study performed at the Peshawar ophthalmology outdoor clinic. The research period for this article was from 01 June 2020 to 05 December 2020. Male and female patients with diabetes mellitus comprised 86 participants in this research. Fundoscopy was performed on all patients in the medical clinic to check for diabetic retinopathy.

Results: average age was 55.099±6.20 years, the Duration of diabetes was 09.29±03.62 years, and the average weight was 85.061±07.55Kg. There were 67% male patients and 33% female ones. One-third of diabetic patients were found to have retinopathy.

Conclusion: Diabetic retinopathy, length of time with diabetes, and diabetes mellitus are all relevant terms.

Keywords: diabetes retinopathy, diabetes mellitus, Duration of diabetes

INTRODUCTION

Diabetic retinopathy (DR) is a common complication of diabetes mellitus¹, and its Prevalence has skyrocketed as the need for regular eye exams has been emphasized and recognized by primary care physicians. About a third of the approximately 320 million individuals who have diabetes globally also have diabetic retinopathy⁰¹. Currently, DR affects [36%] of people throughout the world; [42%] of people in industrialized countries; and [6%] of those with type 01 DM⁰². The severe effects of diabetic retinopathy on patient quality of life and societal and national financial burdens are well documented. Those affected by diabetic retinopathy may have no symptoms at all or severe vision loss⁰³. A study by Bansal P et al. found that 34 percent of those with diabetes who had previously been diagnosed also had diabetic retinopathy. According to a study by Nasir S. et al., the Prevalence of diabetic retinopathy was determined to be [16%] among those with a history of diabetes⁰⁴. Researchers were interested in the Prevalence of diabetic retinopathy among people with diabetes. Diagnostic Criteria: If the patient's fasting blood sugar was [> 126 mg/dl on > 2] occasions, a diagnosis of Type II diabetes mellitus was established⁰⁵. A patient's medical history shows they have been using antihyperglycemics for over a year. Diabetic retinopathy was diagnosed if any of the following were present in a fundus examination⁰⁶. The presence of one or more microaneurysms (tiny blood vessels within the retina leak blood or fluid): several small aneurysms and signs of bleeding. Hemorrhage and microaneurysms are seen in the other four quadrants. However, intraretinal microvascular abnormalities (abnormal branching or dilatation of existing blood vessels (capillaries) inside the retina) are only found in one.⁰⁷

MATERIAL AND METHODS

This tertiary care hospital study was conducted in Peshawar. The research period for this article was from 01 June 2020 to 05 December 2020, making it a single-center study. A predictable frequency of diabetic retinopathy by 36% was used in the WHO sample size calculator to get a value of (86) with a 93% confidence interval, a 7% margin of error, and a known prevalence of diabetic retinopathy in patients with a history of diabetes. The samples were selected using a sequential sampling method that had nothing to do with chance. Criteria for inclusion: Men and women between the ages of 28 and 75 who have had diabetes mellitus for more than a year and who fit the operational criteria of the disease. Patients with retinal laser

treatment in the past are ineligible, as are those with a history of ocular illnesses other than diabetic retinopathy. Diabetic patient's history of Type I, Gestational, or Pancreatic diabetes. Methods of data collection: Patients who met the inclusion criteria were recruited from the outdoor ophthalmology clinic in Peshawar. Patients' baseline characteristics were recorded, including their ages, sexes, lengths of time with diabetes, and weights in kilograms (kgs). Patients gave their consent after being fully informed of the risks and benefits.

Each individual had a fundoscopy at the Division to check for diabetic retinopathy. The Ophthalmoscope was used to do a thorough fundus examination on both eyes. Fundoscopy outcomes were recorded in the outcome proforma as required by the operational definition. Patients were dilated with tropicamide 0.1 % drops after the 15 minutes fundoscopy was performed with a 78D lens. In the end, the patient was recommended to wait a few hours for the pupil sizes to return to normal before driving again. Cases of retinopathy were recorded on a custom-made proforma and were classified according to the WHO's operational criteria.

Analyzing the Data: SPSS 22, a statistical application, was used to evaluate the data. Using mean and standard deviation, we looked at all quantitative factors, such as age, Duration of diabetes, and weight. Qualitative factors, including sex and diabetic retinopathy, were accounted for using frequencies and percentages. Diabetic retinopathy was divided into groups based on age, Gender, Duration of diabetes, and body mass index. The Chi-square test was done after stratification; p - the value less than [0.05] was measured as significant.

RESULTS

According to Table-I, the ages of participants ranged from 28 to 85 years old, with a mean age of 55.01±06.20 years, a mean duration of diabetes of 09.29±03.62 years, and a mean weight of 85.061±07.55Kg. Table-I shows 67% of male patients and 33% of female patients. 37% of patients had diabetic retinopathy, as demonstrated in the Segregation of diabetic retinopathy by age, sex, the interval of diabetes, and weight.

Table 1: Baseline characteristics and demographics of patients, such as age, Gender, and diabetes-related factors such as retinopathy status.

| Demographics | Mean ± SD |
|------------------------------|--------------|
| Age (years) | 55.01±06.20 |
| Duration of Diabetes (years) | 09.29±03.62 |
| Weight in Kgs] | 85.061±07.55 |

| | | |
|---|----------|-----------|
| [Gender] | [N %] | |
| [Male] | 57 | |
| [Female] | 29 | |
| Diabetic Retinopathy | | |
| [Present] | 86(89%) | |
| [Absent] | 32(11%) | |
| [Diabetic Retinopathy (Age categories)] | Present | Absent |
| [28-50] (Years) | 55(65%) | 45(33) |
| [51-85](Years) | 31(35%) | 40(30) |
| Total | 86(100%) | 108(66) |
| [p-Value] | 0.296 | |
| Diabetic Retinopathy (Gender) | | |
| Male | 57(57%) | 66(59.5) |
| Female | 29(33%) | 42(70) |
| Total | 86(100%) | 108(63.2) |
| [P-Value] | [0.171] | |
| Duration of Diabetes (years) | | |
| [1-5 years] | 01(3.4%) | 21(91%) |
| [>5 years] | 32(41%) | 41(57%) |
| [Total] | 32(35%) | 54(64%) |
| [P-Value] | 0.000] | |

DISCUSSION

One-third of diabetic patients were found to have retinopathy. Bansal P et al. found that among those with diabetes who had previously been diagnosed, the Prevalence of diabetic retinopathy was 32%⁹⁷. Another research found that among those with diabetes who already had a diagnosis, the Prevalence of diabetic retinopathy was 16% (Nasir S. et al. Even the seminal research showed that insulin use was correlated with DR risk, which may suggest that effective glycemic control is accomplished with insulin, hence reducing the complication of DR. Our results show a significant correlation between FBG and DR diagnosis/absence [p=0.002] ⁹. Similar to previous research in South Asia⁹, we found that 08 percent of DR cases occurred in individuals with fasting blood glucose levels (FBG) of [100mg/dl], which may have been the consequence of poor metabolic management or the extended Duration of DM. Patients with fasting blood sugar levels (FBS) greater than 150 mg/dl accounted for 80 percent of those who did

not develop DR. Possible explanations include a shorter average duration of diabetes in these individuals or the lack of additional risk factors¹⁰.

CONCLUSION

The Prevalence of DR increases when DM is present for longer periods. Diabetic retinopathy occurs in all individuals with a duration of diabetes of more than ten years. Increased Prevalence is associated with inadequate management of blood sugar levels.

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