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# Assessment of Prevalence of Diabetic Retinopathy

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**[1]Dr. Girish A. Gadre, [2]Dr. Gaurav Paranjpe, [3]Dr. Gaurav H. Khade**

1Associate Professor, 2Assistant Professor, 3Resident, Department of Ophthalmology, Krishna Institute of Medical Sciences (Deemed to be University) (KIMS), Karad, Maharashtra, India

**Corresponding author: Dr. Gaurav H Khade,** Resident, Department of Ophthalmology, Krishna Institute of Medical Sciences (Deemed to be University) (KIMS), Karad, Maharashtra, India Email: drgauravkhade@gmail.com

**Key words**

Diabetes mellitus, Hypertension, proliferative retinopathy

**Abstract**

Background: Diabetic retinopathy is a retinal vascular condition which takes place as a consequence of DM. The current research was carried out to evaluate prevalence of diabetic retinopathy.

Materials & Methods:106 type II diabetes mellitus patients of both genders were included. Retinopathy was labelled as mild non-proliferative retinopathy, moderate non-proliferative retinopathy and severe retinopathy. Parameters such as duration of diabetes, family history, hypertension, BMI etc. had been documented.

Results: amongst 106 subjects, men were 60 whereas women were forty six. Amongst 106 type II DM subjects, mild non-proliferative retinopathy was seen in 26, moderate non-proliferative retinopathy in 15 and severe non-proliferative retinopathy in 7. The difference was non- significant (P> 0.05).DR was present in patients with BMI <24.9 in 6, 25-29.9 in 14 and >30 in 28. Hypertension was seen in 31, family history was seen in 25 and period of DM was <5 years in 14 whereas 5-10 years in 34. The difference was significant.

Conclusion: There had been a high prevalence of diabetic retinopathy. Maximum cases of DR was seen in patients with positive family history of diabetes, BMI >30, hypertension and with 5-10 years of diabetes.

## 1. Introduction

Diabetes mellitus is a series of chronic metabolic diseases that are all defined by high blood sugar concentrations brought on by either the body's inefficiency to make insulin, its resistance to its effect, or both. Nearly four hundred and fifty one million people are affected by this disease globally.[1] An increase in patients is anticipated in the next years as a result of the quick sociodemographic as well as economic changes. Blood sugar levels which are consistently elevated lead to generalised vascular impairment as well as a variety of macro as well as micro vascular problems. Diabetes affecting the eyes can cause diabetic retinopathy.[2] As a side effect of DM, DR is a retinal vascular condition.[3] It represents a major factor in loss of vision that frequently strikes working age individuals. The symptoms of retinal ischemia or enhanced retinal vascular

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permeability are present.[4] Neovascularization, which can cause vitreous haemorrhage or retinal detachment, macular edoema, as well as retinal capillary nonperfusion, are just a few of the mechanisms that might cause blindness. Most people having long term diabetes have retinal disease, however the occurrence rate may be decreased by aggressively managing hyperglycemia as well as hypertension.[5] The variables that were most consistently linked to the establishment of DR among diabetic individuals included prolonged period of diabetes, elevated fasting blood glucose levels, the existence of hypertension, fatness, having insulin therapy solely, having hyperglycemia in a family, as well as low socioeconomic class.[6] The goal of the current investigation was to determine how common DR is.

## 2. Materials & Methods

The present study comprised of 106type II diabetes mellitus patients of both sexes. Everyone submitted the written consent for being the part of trial. Subjects having pregnancy induced DM, those who got extremely sick, patients who were unable to be seated and examined with slit lamp indirect ophthalmoscope were excluded.

Information including name, age, sex etc. was documented. Professional optometrists had conducted the diagnosis of diabetic retinopathy through a90 diopter of Volk lens as well as slit lamp biomicroscope after the eye got managed with one percent tropicamide eye drop. Retinopathy was labelled as mild non-proliferative retinopathy, moderate non-proliferative retinopathy as well as severe retinopathy. Parameters such as duration of diabetes, family history, hypertension, BMI etc. were recorded. Information thus gathered was subjected to statistical analysis. P value of less than 0.05 was known to be relevant.

## 3. Results

**Table I:** Distribution of patients

| **Total- 106** | | |
|---|---|---|
| **Gender** | **Males** | **Females** |
| Number | 60 | 46 |

Table I shows that out of 106 patients, males were 60 and females were 46.

**Table II:** Prevalence of diabetic retinopathy

| **Diabetic retinopathy** | **Number** | **P value** |
|---|---|---|
| Mild non-proliferative retinopathy | 26 | 0.82 |
| Moderate non-proliferative retinopathy | 15 | |
| Severe non-proliferative retinopathy | 7 | |

Table II, graph I shows that out of 106 type II DM patients, mild non-proliferative retinopathy was seen in 26, moderate non-proliferative retinopathy in 15 and severe non-proliferative retinopathy in 7. The difference was non- significant (P> 0.05).

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**Graph I:** Prevalence of diabetic retinopathy

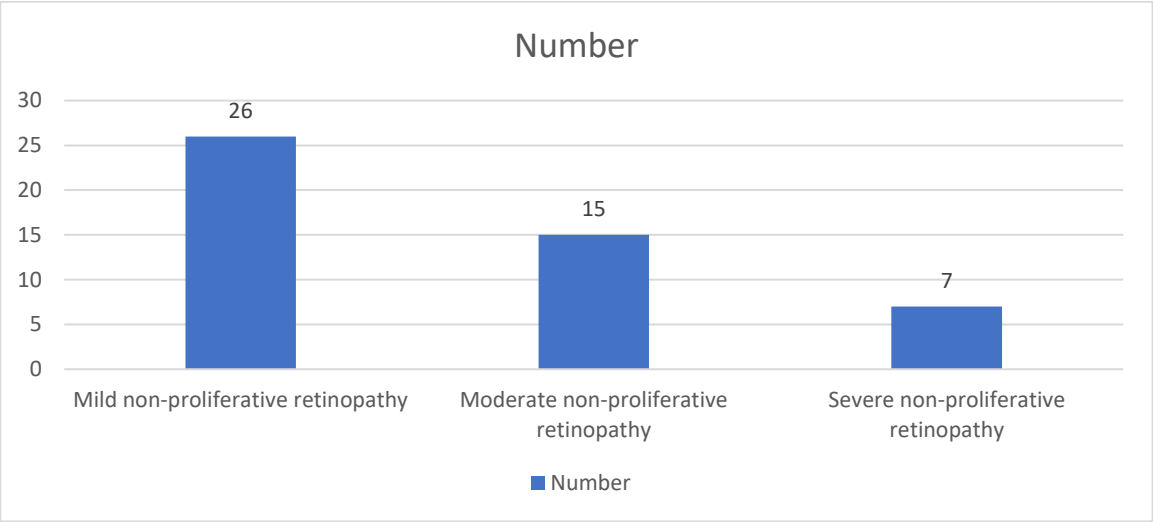
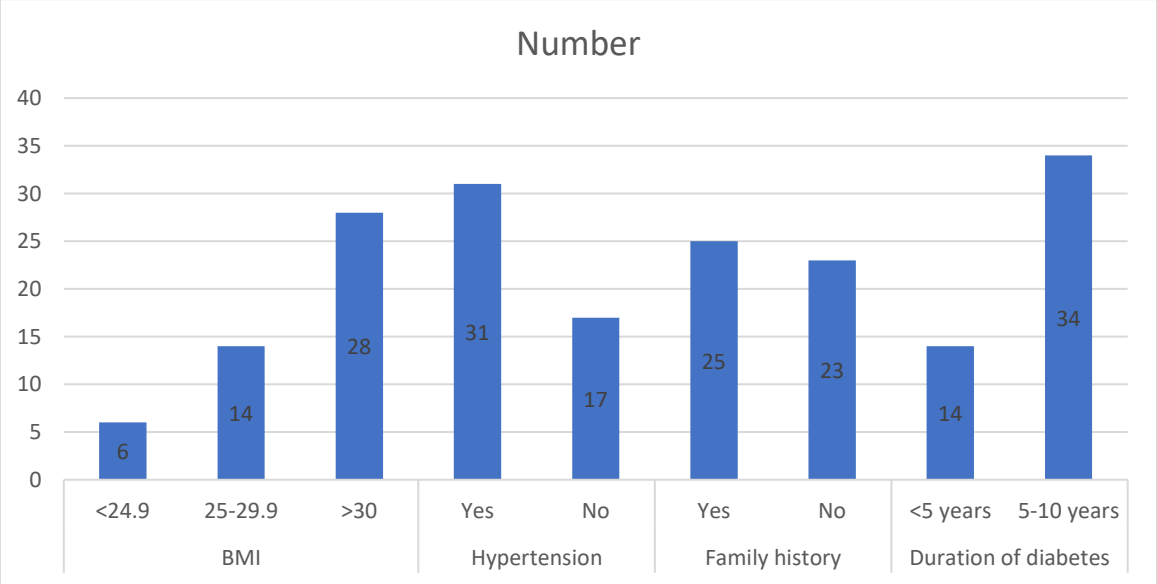



**Table III:** Assessment of parameters

| Parameters | Variables | Number | P value |
|---|---|---|---|
| BMI | <24.9 | 6 | 0.05 |
| | 25-29.9 | 14 | |
| | >30 | 28 | |
| Hypertension | Yes | 31 | 0.04 |
| | No | 17 | |
| Family history | Yes | 25 | 0.94 |
| | No | 23 | |
| Duration of diabetes | <5 years | 14 | 0.02 |
| | 5-10 years | 34 | |

Table III, graph II shows that DR was present in patients with BMI <24.9 in 6, 25-29.9 in 14 and >30 in 28. Hypertension was seen in 31, family history was seen in 25 and duration of diabetes was <5 years in 14 and 5-10 years in 34. The difference was significant (P< 0.05).

**Graph I:** Assessment of parameters



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## 4. Discussion

Diabetes-related retinopathy, in contrast to other age-associated ocular ailments, frequently results in loss of vision throughout the working ages, leading in a greater percentage of person-years of eyesight lost per case, a greater amount of impairment throughout the working ages per instance, as well as accordingly high financial expenses.[7] [8] Additionally, primary prevention as well as secondary prevention can minimize the majority of visual impairment caused by diabetic retinopathy.[9] Monitoring of asymptomatic individuals is necessary to reduce the probability of visual impairment since diabetic retinopathy is frequently asymptomatic at the time when laser photocoagulation must be employed.[10] The goal of the current investigation was to determine how common diabetic retinopathy is.

Among one hundred and six participants, we discovered that there had been sixty men as well as forty six women. Three hundred and thirty one subjects in altogether finished the trial, having a response percentage of 99.10 percent, according to Alemu et al. 34.1 percent of people reported having diabetic retinopathy. DR was individually correlated to lower family monthly income, prolonged period of diabetes, poor glucose tolerance, as well as solely receiving insulin therapy. Mild non-proliferative retinopathy was observed among one hundred and six type II DM subjects, moderate non-proliferative retinopathy in fifteen, whereas severe non-proliferative retinal in seven. According to research by Kempenet al.[12], of the 10.2 million American individuals, forty years and beyond who are expected to develop DM, retinopathy as well as vision-threatening retinopathy have expected crude occurrence rates of 40.3 percent as well as 8.2 percent, correspondingly.

We discovered that six subjects having BMI 24.9, fourteen having between 25-29.9, as well as twenty eight subjects having over thirty had DR. Thirty one people had hypertension, twenty five had familial history, fourteen had diabetes for less than five years, whereas thirty four had it for between five to ten years. These anti-hypertensive drug classes' positive impacts upon diabetic retinopathy as well as DME were assessed by the Renin-Angiotensin system study. Candesartan was reported to enhance reversal of retinopathy with thirty four percent in type 2 DM while decreasing prevalence of retinopathy through 2 or several steps in seriousness on the ETDRS scale by eighteen percent or through 3 or several steps by thirty five percent in type 1 DM.[13] According to a newer systematic review, 3.63 million individuals experience moderate to severe eyesight impairment as a result of diabetic retinopathy as well as its associated sequelae. This eyesight impairment is indicated by the better eye's visual acuity being less than Snellen 6/18 but at minimum 3/60. Visual clarity less than 3/60 in the healthier eye is considered to be DR-associated loss of vision, which affects an additional eight hundred and fifty thousand individuals.[14]

The study's sample size is one of its limitations.

## 5. Conclusion

Authors found that there was high prevalence of diabetic retinopathy. Maximum cases of DR was seen in patients

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with positive family history of diabetes, BMI >30, hypertension and with 5-10 years of diabetes.

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