

A STUDY TO DETERMINE THE SEVERITY AND ASSOCIATED FACTORS OF DIABETIC RETINOPATHY AMONG DIABETES MELLITUS

Ophthalmology

Dr. Vaishnavi Uke Junior Resident, Department of Ophthalmology, Dr.VMGM Solapur.

Dr. Snehalata Yellambkar Associate professor and Head of Department of Ophthalmology, Dr.VMGM Solapur.

Dr. Sharad Jadhav Assistant professor, Department of Ophthalmology, Dr.VMGM Solapur.

ABSTRACT

Diabetic retinopathy (DR) constitutes a chronic, vision-threatening public health crisis and the foremost cause of blindness in diabetic patients. Escalating diabetes mellitus (DM) morbidity fuels microvascular complications, with Diabetic Retinopathy prevalence projected to reach 5.4% by 2025. Despite therapeutic advances, including intravitreal anti-vascular endothelial growth factor agents, a significant proportion of patients show suboptimal responses. In proliferative Diabetic Retinopathy, panretinal photocoagulation remains the cornerstone treatment, yet its destructive nature imposes inherent limitations. Vigilant identification and management of risk factors—including impaired renal function, uncontrolled type 2 DM, hypertension, and dyslipidemia—are imperative to forestall DR onset and progression, as early detection and intervention are pivotal in averting this debilitating condition.

KEYWORDS

Diabetes mellitus, Diabetic retinopathy, Comorbidities, Microvascular complication

INTRODUCTION

Diabetic Retinopathy Is Chronic Sight Threatening Significant Public Health Concern Among Diabetic Patients, Diabetic retinopathy Is Leading Cause of Blindness Among Diabetic Patients as Diabetes Causes Increase in Microvascular Complications So Diabetic Retinopathy Prevalence Is Predicted to Reach 5.4% By 2025 Despite Treatment Advances, Such as Intravitreal Vascular Endothelial Growth Factor Inhibitors Substantial Proportion of Patients Do Not Respond Adequately, For Proliferative Diabetic Retinopathy Laser Photocoagulation Remains the Mainstay but Its Destructive and Has Its Own Limitation.

It Is Important to Recognize and Control Risk Factor For Diabetic Retinopathy To Reduce Its Onset And Progression As Early Detection And Intervention Play Crucial Role In Mitigating The Impact Of Disabling Disease, Various Comorbidities Such As Impaired Renal Function, Uncontrolled T2DM, Hypertension And Dyslipidemia Have Been Shown to Be Prevalent Among Individuals With Proliferative Diabetic Retinopathy.

This Study Aims to Investigate the Significant Association Between Various Cardiac and Renal Risk Factors Namely Age, Gender, Duration of Diabetes, History of Ischemic Heart Disease, Hypertension, serum Levels of Urea, creatinine, cholesterol And Triglycerides and Progression of NPDR Into PDR.

This Study Offer Opportunities for Targeted Interventions to Retard the Advancement of DR And Preserve Visual Function and Quality of life.

OBJECTIVES

Assess the prevalence and risk factors of diabetic retinopathy among diabetic patients Evaluate the impact of comorbidities such as uncontrolled type 2 diabetes, hypertension, dyslipidemia, and impaired renal function on the onset and progression of proliferative diabetic retinopathy.

Identify strategies for early detection and intervention to mitigate DR progression and reduce blindness risk in high-morbidity diabetic populations.

Analyze the public health burden of DR, including its association with microvascular complications and the need for enhanced screening amid rising diabetes cases.

MATERIALS AND METHODS

A retrospective case control study was conducted in ophthalmology OPD at civil hospital, Solapur

Clinical records of 380 diabetic patients older than 40 years with at least 5 years of history of type 2 diabetes who had given their prior

consent to use their data for research purpose were analyzed

Their retinopathy status was categorized into proliferative and non-proliferative diabetic retinopathy using ETDRS criteria

Only records of patients with complete documentation of their retinal examination that showed features of DR were included those records with missing data of investigation are excluded

The data included age, gender, duration of diabetes, diabetic status, history of ischemic heart disease, hypertension, serum creatinine, cholesterol and triglycerides and excluded patient identifiable information

Records of 150 patients diagnosed with proliferative diabetic retinopathy (PDR) were age and gender matched with those 230 patients with no proliferative diabetic retinopathy (NPDR) and served as controls

Numerical variables were expressed as mean and standard deviation

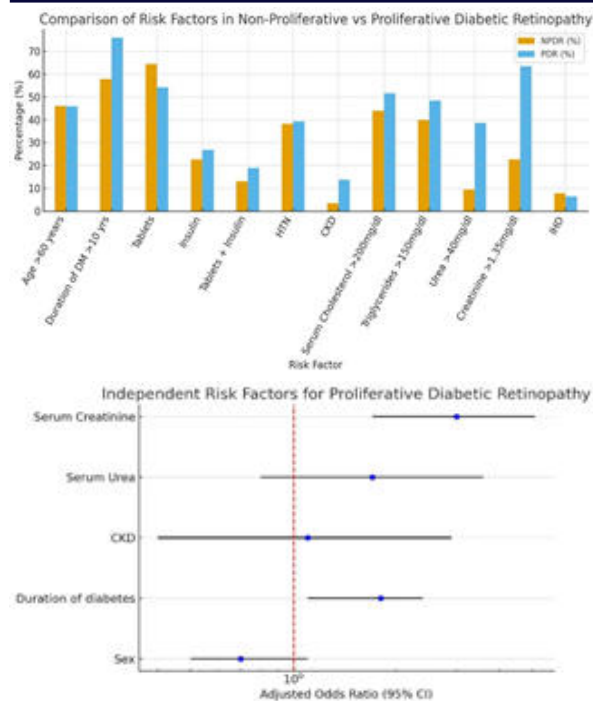
Categorical variables were expressed as frequency and percentage.

Chi square test was used to test association of study variables with outcome

Multiple variable logistic regression analysis was done for significant variables in bivariate analysis the data was entered into ms excel and analyzed by ibmm spss

RESULTS

CLINICAL INFORMATION	NPDR IN % (230)	PDR IN % (150)	PDR IN % (150)
SEX	53.1 /68.3	46.8 /31.6	0.014
AGE > 60 Yr	46.0	45.8	0.712
DURATION OF DM(>10 Yr)	57.8	75.8	0.002
TYPE OF TREATMENT			0.092
TABLETS	64.3	54.2	
INSULIN	22.6	26.8	
TAB+INSULIN	13.1	19.0	
HTN	38.2	39.2	0.635
CKD	3.47	13.7	0.301
Sr. CHOLESTEROL (>200)	43.9	51.6	0.301
TRIGLYCERIDES (>150)	40.0	48.4	0.035
UREA (>40mg/dl)	9.5	38.6	<0.001
CREATININE (>1.35)	22.6	63.4	<0.001
IHD	7.8	6.5	0.215



DISCUSSION

Duration of Diabetes and serum creatinine levels were significantly associated with progression of NPDR to PDR

Elevated serum creatinine levels were independently associated with development of PDR

Study did not find significant association between age, gender, hyperlipidemia, systemic hypertension and history of ischemic heart disease with progression of NPDR to PDR

However, it is important to note that these risk factors are still relevant concerning overall development and severity of diabetic retinopathy

CONCLUSIONS

This study provides valuable insights into risk factors associated with progression of diabetic retinopathy in patients with T2DM

longer duration of diabetes and elevated serum creatinine levels are independent risk factors for progression from NPDR to PDR

Other factor such as age, gender, hyperlipidemia, systemic hypertension, type of diabetic treatment and history of ischemic heart disease did not show significant associations with disease progression. These findings highlight the importance of close ophthalmic and renal function monitoring in patients with NPDR, especially those with longer diabetic history to detect and prevent progression to PDR.

Patient education and multidisciplinary management are essential to minimize visual morbidity in diabetic patients.

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