



DIABETIC RETINOPATHY IN DIABETICS---ITS PREVALENCE AMONG THE DIABETIC PATIENTS ATTENDING AN OUT PATIENT DEPARTMENT OF HEALTH SERVICES .

Ophthalmology

Dr. Mohd Yousuf Senior Consultant Ophthalmologist, Jk Health Services

Dr. Mymoona Akhter* Consultant Medicine, Jk Health Services *Corresponding Author

Dr. Sajad Faculty ,jk Medical College

ABSTRACT

AIMS: To estimate the prevalence of diabetic retinopathy among the diabetics attending the out patient department of health services in Northern state of India.

METHODS: A descriptive population based cross sectional study was carried out. All diabetics attended the OPD were examined on predetermined date and time. Detailed history, detailed ocular examination, height, weight, blood pressure, fasting blood sugar were recorded in a proforma with structured questionnaire on awareness of diabetes and diabetic retinopathy (DR).

RESULTS: 500 patients were examined with female preponderance and prevalence of NIDDM was 96%. The more the duration of diabetes, the more frequency of DR Cases is seen.

CONCLUSION: DR is becoming an important cause for visual disability in India. Rural communities have limited access to medical services. Preventive measures have to be taken by creating awareness, screening programmes for detecting early disease. Early intervention and timely management are required to reduce the burden of visual loss due to DR.

KEYWORDS

Diabetic Retinopathy, Rural Diabetes Screening, diabetic Macular Edema

INTRODUCTION

Diabetes mellitus is defined as a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, protein and fat metabolism resulting from defects in insulin secretion, insulin action, or both.¹ Epidemiologic data suggest that diabetic retinopathy is the leading cause of new cases of blindness in people between the age group of 20-74 years.² This study also showed that the major systemic risk factors for onset and progression of DR are duration of diabetes, degree of glycaemic control and hyperlipidaemia.³ Visual impairment associated with diabetes mellitus and diabetic eye disease may result from macular ischemia, DME, vitreous hemorrhage, or tractional retinal detachment. Of these, macular edema is the most common cause of visual impairment. Further data from the Wisconsin Epidemiologic Study of Diabetic Retinopathy suggest that the 14-year incidence of DME is 26%.⁴ DR is the commonest cause of blindness in the age group of 45-65 year old in developed countries. Further this is a consequence of diabetic maculopathy or proliferative diabetic retinopathy and its sequelae. Of these two, diabetic maculopathy is more frequent and is the cause of visual loss in over 75% of adults with diabetes mellitus.⁵ DR is a vascular disorder affecting the microvasculature of retina. Capillary damage is apparent in the earliest stages of DR by loss of the retinal pericytes that is the mural cells and capillary basement membrane thickening.⁶ With increasing duration and severity of hyperglycemia, there occurs eventual capillary closure and microaneurysm formation.⁷ Majority of diabetics have no symptoms until late stages by which it may be too late for effective treatment. It is one of major cause of morbidity in patients suffering from diabetes mellitus of longer duration.

WHO estimates the global prevalence of diabetes mellitus will increase from 2.8% to 4.4% for the year 2000 to 2030. India is known as 'Diabetic capital of the World' with a diabetic population of 40.9 million, projected to rise to 79.4 million by year 2030. With 41 million Indians having diabetes, every fifth diabetic in the world is an Indian.⁸ This is fast becoming an important cause for visual disability in India. The associated systemic risk factors being hypertension, high glycosylated hemoglobin, systolic blood pressure, pulse pressure, lipoprotein level and body mass index. The significant sight threatening risk factors are chronic kidney disease, cardio vascular disease and hyperlipidaemia. An international clinical severity scale was developed for diabetic retinopathy and diabetic macular edema (DME). This is based on Early Treatment Diabetic Retinopathy Study (ETDRS) which is graded into mild, moderate, severe, very severe, proliferative diabetic retinopathy, high risk and advanced diabetic retinopathy.^{9,10} The screening tools used to stage the disease are Direct Ophthalmoscope, Indirect Ophthalmoscope, Slit Lamp Biomicroscope and Fundus Photography. Frequent follow ups and control of

hyperglycemic states are required for reducing the visual loss due to diabetic retinopathy.

MATERIALS AND METHODS

A descriptive cross sectional study was conducted. Every month the diabetics were selected for visit at predetermined time and date by ophthalmologists, ophthalmic assistants, and refractionist. The concerned Medical Officer, community workers, block health educators would direct all diabetics for screening at head quarter hospital. All patient details were documented in the proforma containing name, age, detailed history, family history, risk factors, diabetic status, height, weight, FBS (fasting blood sugar), co morbidities, life style and awareness level was assessed with a structured questionnaire. Visual acuity was tested with snellens' chart or illiterate E-chart. Detailed anterior and posterior segment evaluation was done with direct and indirect ophthalmoscope. FBS checked at the hospital. The patients clinically graded according to ETDRS study. The patients with no diabetic retinopathy changes were asked for regular annual check-up. Mild to moderate diabetic retinopathy patients were asked to review with HBA_{1c}, Lipid profile, FBS and PPBS reports after three months. Very severe and PDR patients were referred to base hospital for further management. The awareness meetings were conducted for all diabetics, educated about frequent follow-up, life style modification, diet, control of hyperglycemic state.

RESULTS

500 diabetic patients were examined, Of these, 480 patients had NIDDM and 20 had IDDM

TABLE 1 Age And Gender Distribution Of Established Diabetic Retinopathy Cases

AGE (Year)	MALE		FEMALE		TOTAL		RESULTS
	N	%	N	%	N	%	
< 40	18	9.4	20	6.4	38	7.6	P > 0.05 (NS)
40-60	117	60.9	218	70.8	335	67	
> or = 60	57	29.7	70	22.8	127	25.4	
TOTAL	192	38.4	308	61.6	500	100	

TABLE 2: visual Acuity Of Patients With Established Diabetic Retinopathy At Presentation

VISUAL ACUITY		FREQUENCY	PERCENTAGE
LEFT EYE	6/6-6/18	80	59.2
	6/18-6/36	30	22.4
	6/36-6/60	18	13.3
	< or = 6/60	7	5.1
	TOTAL	135	100

RIGHT EYE	6/6-6/18	75	55.5
	6/18-6/36	25	18.5
	6/36-6/60	23	17.03
	< or = 6/60	12	8.88
	TOTAL	135	100

TABLE 3: Prevalence Of Diabetes Mellitus By Type Among Selected Subjects

TYPE OF DIABETES MELLITUS	FREQUENCY	%
IDDM	20	4
NIDDM	480	96
TOTAL	500	100

TABLE 4: Duration Of Diabetes In Patients At Presentation

DURATION OF DIABETES(YEARS)	FREQUENCY	%
< 5	230	46
5-9	110	22
10-14	130	26
>OR=15	30	6

TABLE 5: Age- Distribution Of Patients With Diabetic Retinopathy

AGE (YEARS)	PATIENTS DR		PATIENTS WITHOUT DR		RESULT
	FREQUENCY	%	FREQUENCY	%	
< 40	4	2.9	30	8.22	P< 0.05 significant
40-60	45	33.4	275	75.34	
>OR=60	86	63.7	60	16.43	
TOTAL	135	100	365	100	

TABLE 6- Gender Distribution Of Patients With Diabetic Retinopathy Patients

GENDER	PATIENTS WITH DR		PATIENTS WITHOUT DR		RESULT
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE	
MALE	30	22.22	162	44.4	P<0.05 Significant
FEMALE	105	77.77	203	55.6	
TOTAL	135	100	365	100	

DISCUSSION

The prevalence of adult diabetes worldwide is anticipated to rise from 4.0% in 1995 to 5.4% by 2025.¹³ Given this rising prevalence, it is expected that diabetic retinopathy and diabetic macular edema will continue to be common and will be important causes of vision impairment. DR is the leading cause of legal and functional blindness for people in their working years (ages 25–75 years) worldwide. The overall incidence of DR continues to be in the rising trend looking at the population with new onset diabetes mellitus.¹⁴ Present study conducted in the health sector points towards rising trend of diabetic retinopathy. A similar population based study conducted by Narendran et al. among 260 diabetics found a prevalence rate of DR to be 26.8%.¹⁵ A study conducted in the urban population of Andhra Pradesh had 22.4% prevalence of DR amongst the diabetics.¹⁶ The Diabetes Control and Complications Trial (DCCT) reported that 27% of patients with DR develop macular edema within nine years of diabetes onset.¹⁷ The rural areas are underprivileged in terms of medical facilities in the form of screening as well as treatment. This calls for an urgent need of attention towards this less fortunate part of our society. This sight threatening condition can be controlled with timely intervention and thus, spreading awareness and provision of good eye care facilities can reduce the burden of visual handicap in the so called urbanizing rural population.

CONCLUSION

Prevalence of diabetic retinopathy in rural population is significantly high as compared to previous studies which is affected by the glycaemic control state and associated risk factors. Considering the large burden of diabetic retinopathy is important to identify them at the earliest by screening programmes to modify the course of the disease. There is a need to create awareness among health professionals about timely referral for evaluation. Patient education and formulation of appropriate health care policies is need of the hour to prevent this burden of visual impairment.

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