

Study of prevalence of diabetic retinopathy in new diabetics of Telangana population

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Abstract

Background: Diabetic retinopathy is quite a common problem in diabetic patients. Apart from creating visual problems, it is also associated with CVS, CNS, renal complications; such patients of different age groups in both sexes were studied. **Method:** After ophthalmological study, biochemical investigations were carried out like urine analysis, RBS, FBS, HbA1C, PLBS, Serum creatinine and Serum Albumin. **Results:** In the onset DM study- 46 (51%) had diabetes for more than 6 months, 32 (35.5%) had for more than a year and 12(13%) had diabetes for upto 5 years. In the study Associated diseases-40(36%) had cardio-vascular diseases, 21(23.3%) had nervous system dysfunction, 13(14.4%) had stroke, 11(12.2%) had M.I and 9(10%) had renal dysfunction. **Conclusion:** This empirical study of diabetic retinopathy highlights the associated CVS, CNS and renal diseases which have more rates of morbidity and mortality.

Key Words: DR= Diabetic Retinopathy, DM = diabetes mellitus, Hyperglycemia, Hypertension = HTN

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INTRODUCTION

Diabetic retinopathy (DR) is the most common complication of Diabetes mellitus (DM), and is the leading cause of blindness among working ages of people globally.¹ It has been estimated that 30% of people with DM have DR.² In India prevalence of DR in DM was observed as 17.6%.³ The presence of DR is strongly related to the duration of DM because the severity of DR is an indication of chronic DM. In addition there was an approximate 3-fold increase in vision threatening DR in those who had DM for 10 years or more. Many research results have shown an important role of vascular

endothelial growth in the pathogenesis of DR, optical coherence tomography (OCT) for diagnosis of diabetic macular edema, and shift of treatment pattern from traditional laser treatment to intraocular delivery of agents that have vascular endothelial growth factor inhibitors (Anti-VEGFs). Hence attempt was made to study the prevalence of DR in newly diagnosed DM so that the DR patients can be cured efficiently by regulating the blood-glucose and preventing further degeneration as DR in chronic DM patient is irreversible and vision threatening.

MATERIAL AND METHODS

90 patients of Diabetic retinopathy (DR) aged between 21 to 80 years of both sexes who were regularly visiting to Sarojini Devi eye Hospital, Hyderabad were selected for the study.

Inclusion criteria – The DM patients suffering with diabetic retinopathy were confirmed by an ophthalmologist and a physician. Different age groups were included in the study.

Method- Every patient of DM having retinopathy were studied in detail. The onset of Diabetes at different age groups, associated CVS, CNS, renal diseases were also recorded. The Biochemical study, Urine analysis, RBS,

FBS, PLBS, HbA1C, Serum creatinine, Serum Albumin was also studied to confirm the diagnosis. Majority of the patients belonged to middle socioeconomic status. The duration of study was about two years (Jan 2013 to Dec 2014)

Exclusion criteria – Juvenile Diabetics, patients having congenital anomalies of kidney, immuno-compromised patients, were excluded from the study.

Statistical analysis- Onset of DM period at different age groups was classified with percentage, Diabetic retinopathy patients having associated renal, CVS, CNS,, were classified with percentage. The ratio of the male and female was 2:1.

OBSERVATION AND RESULTS

Table-1 Prevalence of retinopathy in relation to the duration of diabetes: 46(51.1%) patients had diabetes for more than six months, 32(35.5%) had for six months to one year, 12(13%) had 2-6 years of D.M

Table-2 Age wise distribution of the prevalence of Diabetic retinopathy: 14(15.5%) were aged between 21 to 40 years, 49(54.4%) were aged between 41 to 60 years, 27(30%) were aged between 61 to 80 years

Table-3 Study of the prevalence of Diabetic retinopathy patients with other organ diseases: 36(40%) had cardiovascular disease, 21(23.3%) had involvement of the nervous system, 13(14.4%) had stroke, 11(12.2%) had MI, 9(10%) had renal dysfunction.

Table 1: Prevalence of retinopathy in relation to duration of Diabetes mellitus No of patients – 90

Sl no	Particular of Duration	No of patients	Percentage %
1	More than six months	46	51.1
2	Since one year	32	35.5
3	2 years to 5 year	12	13

Table 2: Age wise distribution of the prevalence of Diabetic Retinopathy (No of patients – 90)

Sl no	Particular of age	No of patients	Percentage %
1	21-40	14	15.5
2	41-60	49	54.4
3	61-80	27	30

Table 3: Study of the prevalence of Diabetic retinopathy patients with other organ diseases(No of patient 90)

Sl no	Particular of Disease	No of patients	Percentage %
1	Cardio vascular	36	40
2	Nervous system dysfunction	21	23.3
3	Stroke	13	14.4
4	MI	11	12.2
5	Renal dysfunction	9	10

DISCUSSION

In the present study of Diabetic retinopathy in Telangana population, the duration of Diabetes mellitus; 46(51.1%) had for more than six months, 32 (35.5%) had since one year, 12(13%) had for 2 years to 5 years (Table-1). In the age wise distribution of prevalence of Diabetic retinopathy; 14(15.5%) were aged between 21-40, 49(54.4%) were aged between 41-60, 27(30%) were aged between 61-80. (Table-2). Other clinical manifestations observed were: 36(40%) had cardio-vascular involvement, 21(23.3%) had nervous system dysfunction, 13(14.4%) had stroke, 11(12.2%) had MI, 9(10%) had renal dysfunction (Table-3). These findings were more or less in agreement with previous studies.⁽⁵⁾⁽⁶⁾⁽⁷⁾ In the present study it was difficult to predict the exact duration of onset of Diabetes because the selected patients were unaware of symptoms of DM, moreover due to poverty they could not offer the medical facilities till it turned to worse. In the previous epidemiological study, the prevalence of DR varied from 28.8% in persons who had

diabetes for more than five years (> 5 years) to 77.8% in persons who had diabetes for 15 or more years, 9.23% in patients of more than six months (< 6 months) and 35.12% at 5 years or less than five years(< 5 years) ⁹Moreover insulin users were predominantly those with type-2 diabetes who have severe DM and undefined group of type 1 diabetes. Both groups had a higher chance of developing DR and DM patients associated with renal dysfunction were more likely to have DR if they had suffered from cerebro-vascular accident or blockage. ¹⁰ The major risk factors associated with DR were hypertension, hyperglycemia and dyslipidemia. Because in hyperglycemic condition viscosity of blood is raised and there will be increased vascular permeability and capillary occlusion in the retinal vasculature. Animal models and human studies suggest that chronic inflammation and glucose induced arteriolar endothelial dysfunction are related to development of classic DR.⁽¹¹⁾ Hence it can be hypothesized that, inflammatory processes may also be a possible pathway that underlies

early sub clinical micro vascular disease in the pre diabetes or early diabetic stage. Retinal changes like micro aneurysm, hemorrhages, and cotton wool spots predict the development of clinical cardio vascular and cerebro vascular events independent of traditional risk factors. Increased physical activity, reduction in weight, proper and regular treatment (eg Diabetes and HTN medication) may improve the retinal vascular measures.

SUMMARY AND CONCLUSION

India has one of the fastest growing diabetic population and DR is the major cause of vision loss. Patients with DR need lifelong attention with versatile treatment approaches. Recent advances in imaging and diagnosis of DR are available presently for its treatment. A new trial on the use of intravitreal anti- VEGF (vascular Endothelial growth factor) therapy has improved management of this major clinical problem but state and or central government of India must come forward to avail such facility in government hospitals so that every poor and needy patients can be benefited and lead a better and healthy visual life.

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