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Original Research Article.

A Prospective Study to Evaluate the Prevalence of Diabetic Retinopathy in Type 2 Diabetic Patients: A Hospital Based Study

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ABSTRACT

Background: Diabetic retinopathy (DR) causes significant visual loss on a global scale. Hence, we planned the present study to assess the prevalence of diabetic retinopathy in Type 2 diabetic patients.

Materials & Methods: The present study included assessment of prevalence of diabetic retinopathy in Type 2 diabetic patients. A total of 100 diabetic patients were included in the present study. Complete examination was carried out to assess the prevalence of diabetic retinopathy among diabetic patients. All the results were compiled and analyzed by SPSS software.

Results: Diabetic retinopathy was found to be present in 25 percent of the patients. Significantly higher prevalence of diabetic retinopathy was seen in subjects of more than 50 years of age.

Conclusion: Diabetic retinopathy is significantly associated in diabetic patients, with significantly higher prevalence in elderly patients.

Keywords: Diabetic Retinopathy, Diabetic Mellitus.

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INTRODUCTION

Diabetic retinopathy (DR) causes significant visual loss on a global scale. Treatments for the vision-threatening complications of diabetic macular edema (DME) and proliferative diabetic retinopathy (PDR) have greatly improved over the past decade.[1-3] Based on their obvious manifestations during DR progression, microvascular lesions have been utilized as the major criteria for evaluating and classifying the retina in DR. However, diabetes-induced changes also occur in nonvascular cell types that play an important role in the development and progression of DR, albeit in unison with the vasculature.[4-6] Hence; under the light of above mentioned data, we planned the present study to assess the prevalence of diabetic retinopathy in Type 2 diabetic patients.

MATERIALS & METHODS

The present study was conducted in the department of General Medicine, Government District Hospital, Dungarpur, Rajasthan, India. It included assessment of prevalence of diabetic retinopathy in Type 2 diabetic patients. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. A total of 100 diabetic patients were included in the present study.

Exclusion criteria for the present study included:

- Patients with history of any other systemic illness,
- Patients with presence of any other metabolic or endocrinal pathology
- Patients more than 70 years of age

Complete demographic details of all the patients were recorded. Complete examination was carried out to assess the prevalence of diabetic retinopathy among diabetic patients. All the results were compiled and analyzed by SPSS software.

RESULTS

In the present study, a total of 100 subjects were analyzed.

Mean age of the patients of the present study was 53.8 years. There were 65 males and 35 females in the present study. (Table 1) Mean age of the males of the present study was 55.6 years, while the mean age of the females was 52.4 years. (Table 1)

Diabetic retinopathy was found to be present in 25 percent of the patients. Significantly higher prevalence of diabetic retinopathy was seen in subjects of more than 50 years of age. (Table 2)

Table 1: Demographic data

Parameter	n
Total subjects	100
Mean age (years)	53.8
Males	65
Females	35

Table 2: Prevalence of diabetic retinopathy

Parameter	n	%
Diabetic retinopathy patients	25	25
Diabetic retinopathy among subjects more than 50 years of age	15	15
Diabetic retinopathy among subjects less than 50 years of age	10	10

DISCUSSION

Diabetic retinopathy is a potentially blinding complication of diabetes mellitus. Reasons for loss of vision are diabetic maculopathy and complications of proliferative diabetic retinopathy (PDR) such as vitreous hemorrhage, tractional retinal detachment, and neovascular glaucoma.[3,4] Micro-angiopathy due to hyperglycemia in patients with diabetes mellitus results in vascular leakage, which causes diabetic macular edema on one hand, and capillary occlusion on the other hand. Capillary occlusion then again causes retinal ischemia and increased levels of vascular endothelial growth factor (VEGF) which are responsible for the development of neovascularization and the proliferative stage of diabetic retinopathy.[6,8]

In the present study, a total of 100 subjects were analyzed. Mean age of the patients of the present study was 53.8 years. There were 65 males and 35 females in the present study. Mean age of the males of the present study was 55.6 years, while the mean age of the females was 52.4 years. Apart from the east–west divide, rapidly developing economies in Asia such as China and India are observing urban–rural divides in terms of DR disease burden. In China, prevalence of DR was reported to be higher among adults with type 2 diabetes living in rural regions (29.1–43.1 %), compared to their urban counterparts (18.1 %). Conversely, in a study conducted in Chennai, India, DR prevalence was reported to be higher in urban (18.0 %) compared to rural areas (10.8 %), possibly due to the increasing affluence accompanied by changes in diet in the urban regions and selective mortality of those with diabetes-related complications in rural regions because of poor access to healthcare.[9,10] Gadkari SS et al in their study, assessed the prevalence of diabetic retinopathy (DR) in diabetic patients across the nation and attempt to establish history-based risk factors. Known diabetics were evaluated voluntarily by members of the society at 194 centers using a structured protocol provided by the society for examination. The results were evaluated to ascertain the prevalence of DR in the population studied and to establish relation with gender, age, and history-based risk factors such as duration of diabetes, insulin use, and other end-organ disease using the Chi-square test. A total of 6218 known diabetics were screened. Totally, 5130 data entry forms were considered suitable for further evaluation. About 61.2% were males, 88.6% were between 40 and 80 years of age, almost two-thirds of the patients were from the west and south zones, and over half had diabetes more than 5 years. The data set was predominantly urban 84.7% and 46.1% had no family history. DR prevalence in the entire data set was 21.7%. Prevalence was more in males, diabetics more than 5 years, those above 40 years, insulin users, and history of vascular accidents. Significantly 22.18% of patients detected with DR had a vision of 6/18 or better in the worse eye. The study reiterated the findings of earlier regional studies on a pan Indian scale and put data in perspective.[11]

In the present study, Diabetic retinopathy was found to be present in 25 percent of the patients. Significantly higher prevalence of diabetic retinopathy was seen in subjects of more than 50 years of age. Zhang X et al described the prevalence and risk factors of diabetic retinopathy among US adults with diabetes aged 40 years and older. Two fundus photographs were taken of each eye with a digital nonmydriatic camera and were graded using the Airlie House classification scheme and the Early Treatment Diabetic Retinopathy Study severity scale. Prevalence estimates were weighted to represent the civilian, noninstitutionalized US population aged 40 years and older. The estimated prevalence of diabetic retinopathy and vision-threatening diabetic retinopathy was 28.5% (95% confidence interval [CI], 24.9%–32.5%) and 4.4% (95% CI, 3.5%–5.7%) among US adults with diabetes, respectively. In a nationally representative sample of US adults with diabetes aged 40 years and older, the prevalence of diabetic retinopathy and vision-threatening diabetic retinopathy was high, especially among Non-Hispanic black individuals.[12]

CONCLUSION

Under the light of above obtained results, the authors conclude that diabetic retinopathy is significantly associated in diabetic patients, with significantly higher prevalence in elderly patients. However; further studies are recommended.

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