

Awareness of Diabetic Retinopathy in Diabetic Patients at Nazar Vision Care Islamabad Pakistan

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ABSTRACT

OBJECTIVE

To determine the awareness of Diabetic Retinopathy in Diabetic Patients.

MATERIALS AND METHODS

After taking consent and recording demographic details, an interviewer based questionnaire was used to assess patients' awareness about ocular complications of diabetes on a 10 points questionnaire before their fundus examination using Ophthalmoscope and slit lamp microscope with + 90 Diopter lens in the eye OPD.

RESULTS

Among the enrolled 300 patients, 146 (48.7 %) were male and 154 (51.3 %) patients were female. As far as the age of the patients was concerned, 5 % were from less than 20 years, 29 % from 21 - 40 years, 43 % from 41 - 60 years and 22.3 % were more than 60 years. The mean age of the participants was 49 + SD 10.01 years. Maximum number was seen in 41 - 60 years age group i.e. 131 patients. There were 44 (14.7 %) patients with newly diagnosed Diabetes. 124 (41.3 %) patients with less than 5 years diabetes durations and 132 (44.00 %) patients had diabetes for more than 5 years.

CONCLUSION

The knowledge about diabetic retinopathy and its treatment was inadequate along with poor compliance with annual fundus examination. This is directly related to the educational level of the patient and the duration of diabetes.

KEYWORDS

Diabetic retinopathy, Awareness, Annual fundus examination

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INTRODUCTION

Eye is the organ that is specialized for sight. These may be as simple as proteins or cells which can tell light from darkness like the "eyes" found in many microorganisms are they may be complex assemblies of lenses, filters, light - sensitive tissues, nerves, and support structures. The eye has many parts which work together to accomplish vision, and to keep the structures required for vision safe from infection and injury.^{1,2} the anterior chamber of the eye refers to a small pocket of fluid that lies between the cornea and the iris. The iris is the colored ring around the pupil. Different people have different amounts of pigment in their iris, resulting in eye colors ranging from blacks to very pale blues and greens. The pupil is the opening to the inner chamber of the eye. Pupils appear black because light passes through them and does not return. The pupil, then, is our actual "window to the world." The lens of the eye lies immediately behind the pupil.³ the vitreous humor is a thick, gelatinous fluid that fills most of the eyeball. It appears purplish - red due to the visual purple of the rods and underlying vascular choroid. It is the center of the eye's sharpest vision and the location of most color perception.⁴ The retina is composed of 10 layers. The peripapillary Retinal Nerve Fiber Layer (RNFL) is formed by retinal ganglion cell axons and represents the innermost layer of the fundus. In the retina the axons are spread out as a thin layer and appear as opaque striations (axon bundles) which have an almost straight horizontal course and form an arch around the macula.⁵ it comprises the sensory neurons that begin the visual pathway. The neural retina (neuroretina) is divided into ten layers: outer and inner segments of photoreceptors (rods and cones), external limiting membrane, outer nuclear layer, outer plexiform layer, inner nuclear layer, inner plexiform layer, ganglion cell layer, nerve fiber layer and internal limiting membrane.⁶ Diabetes Mellitus is a common metabolic disorder characterized by sustained hyperglycemia of variable severity. Diabetes mellitus is a disorder of blood glucose regulation, usually caused by insufficiency or relative ineffectiveness of insulin.⁷ there is various health hazards/disorders associated with diabetes mellitus. It affects the metabolism of fat and protein. In its advance stages, rapid loss of body weight and ketosis are observed. Other complications include diabetic coma, diabetic retinopathy, peripheral neuropathy, diabetic nephropathy, atherosclerosis and possibly skin infection.⁸ Diabetes mellitus is a clinical syndrome in which there is hyperglycemia as a result of absolute or relative deficiency of insulin. It can present in different ways but the most common is type 1 diabetes (autoimmune) and adult - onset type 2 diabetes.⁹ Type 1 diabetes (autoimmune) was previously termed 'insulin - dependent diabetes mellitus' (IDDM) and is invariably associated with profound insulin deficiency requiring replacement therapy. Type 2 diabetes was previously termed 'non - insulin - dependent diabetes mellitus' (NIDDM) because patients retain the capacity to secrete some insulin but exhibit impaired sensitivity to insulin (insulin resistance) and can usually be treated without insulin replacement therapy.^{10,11} The incidence of childhood type I diabetes varies worldwide. In general, the risk appears to rise as the geographical latitude increases. When people relocate from a region of low to high incidence, their risk of developing type I diabetes also increases, suggesting a causative role for

environmental factor. The highest reported incidences occur in Finland and Sardinia (37 to 45 per 100,000 children younger than the age of 15 years) with rates that are almost 400 times that of Venezuela and parts of China, which have the lowest incidence (0.1 to 0.5 per 100,000 children).¹² In the United States, the incidence of type 1 diabetes in non-Hispanic white children and adolescents is 23.6 per 100,000 annually, and the prevalence is 2.0 per 1000. Rates are substantially lower in other racial or ethnic groups. Parts of Canada, such as Newfoundland, have a higher incidence (36 per 100,000) than the United States, whereas the incidence in Quebec is lower, at 15 per 100,000 in children younger than 15 years of age.¹³ Patients with type 1 diabetes are somewhat more likely to present with ketoacidosis, due to insufficient insulin production, but this presentation is not uncommon in type 2 diabetes. Type 1 diabetes is suggested by the presence of pancreatic (islet) autoantibodies. These include insulin autoantibodies (IAA), islet cell cytoplasmic antibodies (ICA) or glutamic acid decarboxylase (GAD) antibodies. Type 1 also is usually suggested by reduced insulin and c - peptide levels. On occasion it is difficult to classify diabetes in patients with mixed features.^{14,15} The presence of serum autoantibodies suggests type 1 diabetes, but can also occur in patients with type 2 diabetes, particularly those presenting with atypical features. Therefore, the presence of autoantibodies does not rule out the possibility of type 2 diabetes. Furthermore, fasting serum insulin levels and C - peptide levels have not been standardized to distinguish between type 1 and 2 diabetes.^{16,17} Finally, the pathophysiologic features of both types of diabetes may coexist in the same patient, particularly if the patient has obesity.

MATERIALS AND METHODS

The cross sectional study design was used for this study. The convenient sampling technique was used for data collection. There was six month study duration study conducted on Nazar Vision Care Ghouri Town. The research and data collection procedure was ethically approved from the PIRS research ethical committee. 300 diabetic retinopathy patients were included in this study. Data was collected from the patients visiting the Nazar vision care through the specially designed questionnaire. Self - Response questionnaire was used for data collection.

Inclusion Criteria

1. Patients with the diabetic retinopathy
2. Those that was willing to participate in this research.

Exclusion Criteria

1. Diabetic retinopathy patients with mental issues
2. Those that was not willing to participate

Statistical Analysis

All results are presented in the form of frequency and percentage. The latest version of SPSS 23 was used for data analysis.

RESULTS

Among the enrolled 300 patients, 146 (48.7 %) were male and 154 (51.3 %) patients were female (Figure 1).

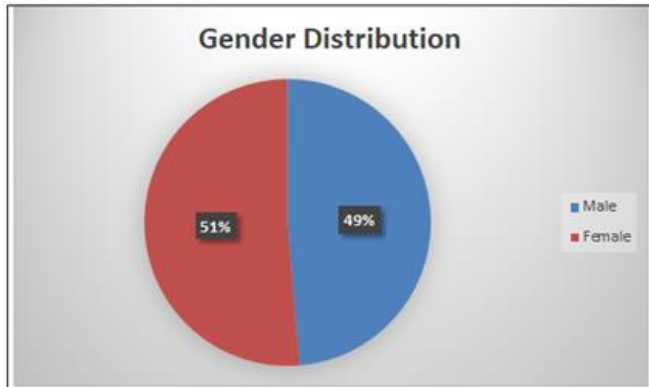


Figure 1. Among the Enrolled 300 Patients, 146 (48.7 %) Were Male and 154 (51.3 %) Patients Were Female.

As far as the age of the patients was concerned, 5 % were from less than 20 years, 29 % from 21 - 40 years, and 43 % from 41 - 60 years and 22.3 % were more than 60 years. The mean age of the participants was 49 ± SD 10.01 years. Maximum number was seen in 41 - 60 years age group 131 patients (Figure 2).

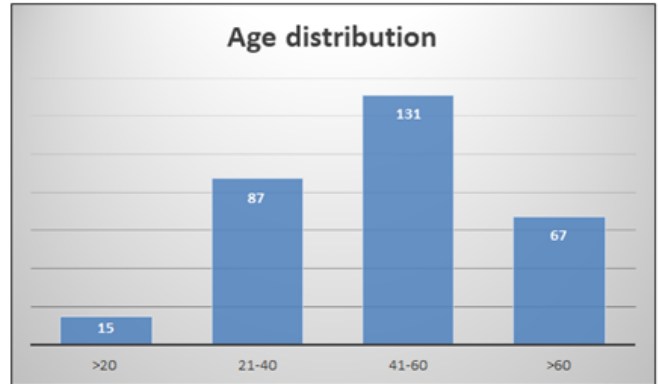


Figure 2. As Far As The Age Of The Patients Was Concerned, 5% Were From Less Than 20 Years, 29% From 21-40 Years, 43% From 41-60 Years And 22.3% Were More Than 60 Years. The Mean Age of the Participants Was 49 ± Sd 10.01 Years. Maximum Number Was Seen In 41-60 Years Age Group 131 Patients.

Out of 300 patients 170 (92.89 %) educated patients know about the normal range of blood sugar level, 155 (84.69 %) educated patients know about information about diabetic eye disease, 108 (59.01 %) patients vision affected by diabetes, 113 (61.74 %) patients know about diabetes can cause Blindness, 104 (56.83 %) patients know about early cataract development due to diabetes, 162 (88.52 %) patients know about good control of diabetes is sufficient for control of blindness with diabetic retinopathy (Table 1).

Question	Response	Group B (Educated)
	Group A (Illiterate) n = 117	N = 183
Do you know about the normal range of blood sugar level? Yes/ No	Yes: 82 (70.08 %)	170 (92.89 %)
	No: 35 (29.91 %)	13 (7.10 %)
Do you have any information about diabetic eye disease?	Yes: 90 (76.92 %)	155 (84.69 %)
	No: 27 (23.08%0)	28 (15.31 %)
Is your vision affected by diabetes?	Yes: 87 (74.35 %)	108 (59.01 %)
	No:30 (25.65 %)	74 (40.99 %)
Do you know if diabetes can cause Blindness?	Yes: 68 (58.11 %)	113 (61.74 %)
	No: 49 (41.89 %)	70 (38.26 %)
Has any doctor ever recommended you the regular eye examination?	Yes: 28 (23.93 %)	63 (34.42 %)
	No. 89(76.07 %)	120(65.58 %)

Do you go for regular eye examination?	Yes: 13 (11.11 %)	37 (20.21 %)
	No: 104 (88.89 %)	146 (79.79 %)
Have you any information about early cataract development due to diabetes?	Yes: 61 (52.13 %)	104 (56.83 %)
	No: 56 (47.87 %)	79 (43.17 %)
According to you, is diabetic retinopathy is corrected with glasses?	Yes: 25 (21.36 %)	65 (35.51 %)
	No: 92 (78.64 %)	118 (64.49 %)
Do you have any idea about the laser and injection treatment of Diabetic retinopathy?	Yes: 18 (15.38 %)	39 (21.31 %)
	No: 99 (84.62 %)	144 (78.69 %)
Do you think that only good control of diabetes is sufficient for control of blindness with diabetic retinopathy?	Yes: 97(82.90 %)	162(88.52 %)
	No: 20(17.10 %)	21(11.48 %)

Table 1. Education and Knowledge About Diabetic Retinopathy

DISCUSSION

Diabetic retinopathy is a common cause of blindness and most of the patients are unaware of the risk factors and complications of diabetic retinopathy. Lack of knowledge lead to misconception that DR will cause symptoms and after that they will seek ophthalmological advice and treatment. In this study, most of the patients knew the normal range of blood glucose level regardless of the fact that they were illiterate (70.08 %) or literate (92.89 %). This is in contrast to a study done in India where (49.9 %) had knowledge of DM. Most of the patients were aware about diabetic eye disease (84.69 %) as well as effect of diabetes on vision. this is in comparison with a study done in Nigeria where 84.3 % patients were aware of diabetic retinopathy and 80.5 % knew it could lead to blindness.^{18,19} Awareness of patients regarding regular fundus examination (11 - 20 %) as well as treatment of DR (15 - 21 %) was significantly lacking. This is comparable with another study done at Hayatabad Medical Complex Peshawar in which 53 % of known diabetic patients had never had their eyes examined.^{20,21} Screening was not recommended by physicians to most of the patients (65 - 76 %), This is comparable with a study done in Saudi Arabia where only 24 % of physicians correctly referred patients with type 1 diabetes to an ophthalmologist however, majority of the patients knew that uncontrolled diabetes will lead to cataract formation (52 - 56 %).^{22,23} In this study, there was a significant association between duration of disease and awareness of DR, its complications. Addoor et al. demonstrated that awareness was significantly associated with duration of diabetes, educational status and age of the patient.^{24,25}

CONCLUSION

There is a need for awareness of DR among Diabetic patients

to minimize ocular complications. The diabetic patients in Pakistan, although aware of the fact that diabetes affects the eye, have poor knowledge about diabetic retinopathy. The diabetic patients in Pakistan need more counseling regarding Diabetes as well as diabetic retinopathy.

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