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ORIGINAL ARTICLE

Frequency of Diabetic Retinopathy Amongst Type 2 Diabetes Mellitus Patients

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ABSTRACT

Background: A chronic and debilitating condition called as diabetes is now a global epidemic problem. Patients in our population with 2 diabetes mellitus often develop diabetic retinopathy.

Objective: To assess the diabetic retinopathy frequency amongst type 2 diabetes mellitus patients

Methodology: The observational study was carried out at Ophthalmology, Department, Qazi Hussain Ahmad Medical Complex, Nowshera from January 2022 to July 2022. Ophthalmoscopy (Both direct and indirect) was done for the retinopathy and was then classified according to standard classification. All the data including age, gender and frequency of retinopathy was documented in a proforma designed for this research. IBM SPSS version 23 was used for data analysis.

Results: In the current research, totally 320 type 2 diabetes mellitus patients were enrolled. There were 176 (55%) male patients while female patients were 144 (45%). Mean age (SD) of the enrolled patients in our study was 44 (12.5) years. The mean (SD) diabetes mellitus duration was 5.21 (2.56) years. In type 2 diabetes mellitus patients, the overall diabetic retinopathy frequency was 128 (49%).

Conclusion: Our study concludes that the diabetic retinopathy prevalence is very high amongst type 2 diabetic patients. The prevalence of diabetic retinopathy is significantly increased due to lack of awareness and ophthalmic assessment. All the type 2 diabetic individuals should have routine ophthalmic evaluations.

Keywords: Frequency; Diabetic retinopathy; Type 2 diabetes mellitus

INTRODUCTION

A chronic and debilitating condition called as diabetes is now a global epidemic problem. By 2030, it is expected that 439 million individuals would have diabetic retinopathy [1]. The diabetes mellitus prevalence in Pakistan is 11%, having the sixth highest population of patients with diabetes, with the forecast that it would rise to the fifth place by 2030 [2, 3]. Approximately 60% of diabetes people acquire diabetic retinopathy within 20 years after diagnosis. Diabetic retinopathy affects 21% of diabetic patients at the time of diagnosis [4]. According to the World Health Organization (WHO), diabetic retinopathy is responsible for 4.8% cases of blindness [5]. The diabetic retinopathy prevalence in diabetes mellitus patients was found to be 34.6%, with over 10% having vision-threatening retinopathy, according to a meta-analysis [6]. By maintaining HBA1C below 7% decrease microvascular consequences, particularly in early phases of diabetic retinopathy and nephropathy, according to two studies [7 8]. Additionally, research show that although adequate glycaemic management does not entirely halt retinopathy, it does lower the chance of the condition progressing [9]. Therefore, it may lead to less need for therapy and eye preservation [9]. Both non-proliferative diabetic retinopathy and proliferative diabetic retinopathy are included in the diabetic retinopathy classification. Non-proliferative diabetic retinopathy is subdivided into severe, moderate, and mild forms. Microvascular blockage, the synthesis of vascular endothelial growth factor, and eventually neovascularization occur in severe disease. These fragile blood vessels might burst, resulting in bleeding. A tractional retinal detachment and irreversible vision loss might result with further advancement. According to a research conducted in Karachi, 55.3% of patients with diabetes had various stages of diabetic retinopathy [10]. Another research from Multan estimated that 73.1% of people had diabetic retinopathy [11]. Another multicenter research report reported that the prevalence was 56.9% [12]. On the other hand, a significant research with 11,158 patients found that 24.7% of patients developed diabetic retinopathy [13]. Only 22.7% of type 2 diabetes individuals were found in another Lahore-based investigation [14]. In Hyderabad district, prevalence was reported to be as low as 17% [15]. Our goal was to evaluate the diabetic retinopathy frequency in type 2 diabetes mellitus individuals since the frequency of the condition varies among studies and has not been examined in our setting.

MATERIALS AND METHODS

The current observational study was carried out at the Ophthalmology Department, Qazi Hussain Ahmad Medical Complex, Nowshera for a duration of six months from January 2022 to July 2022. The ethical approval of the study was taken from the IRB of the hospital. A total of 320 patients were enrolled in our study. Our study inclusion criteria were patients of both the gender having age 18-80 years, diagnosed with diabetes mellitus and willing to participate in our study. The exclusion criteria for our study were all the patients with sickle cell retinopathy, retinal artery occlusion, hypertension and retinal vasculitis. The informed consent was taken from all the participants of the current research. All the enrolled patients were examined clinically. Ophthalmoscopy (Both direct and indirect) was done for the retinopathy and was then classified according to standard classification. All the data including age, gender and frequency of retinopathy was documented in a proforma designed for this research. IBM SPSS version 23 was employed for analysis of data. Age and diabetes duration were documented as mean (± SD) while gender and retinopathy in diabetic patients were documented as percentage and frequency.

RESULTS

In the current research, totally 320 type 2 diabetes mellitus patients were enrolled. There were 176 (55%) male patients while female patients were 144 (45%). (Figure 1) The mean age (SD) of the enrolled patients was 44 (12.5) years. The mean (SD) diabetes mellitus duration was 5.21 (2.56) years. The overall diabetic retinopathy frequency was 128 (49%) in type 2 diabetes mellitus patients. (Figure 2) Based on classification of diabetic retinopathy, 74 (57.81%) patients were observed with Background retinopathy, 32 (25%) patients were observed with Preproliferative retinopathy

while only 22 (17.19%) patients were observed with Proliferative retinopathy. (Figure 3)

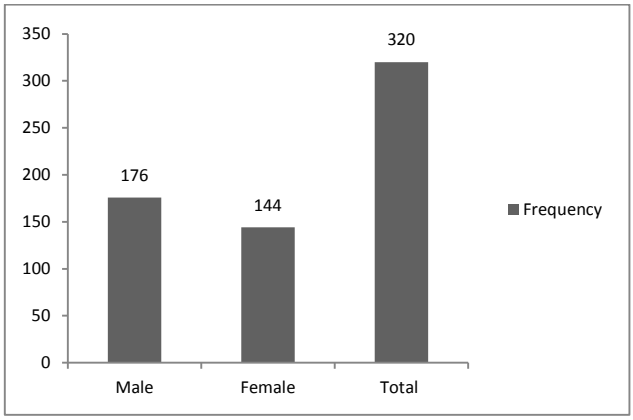

Figure 1: Patients distribution based on gender

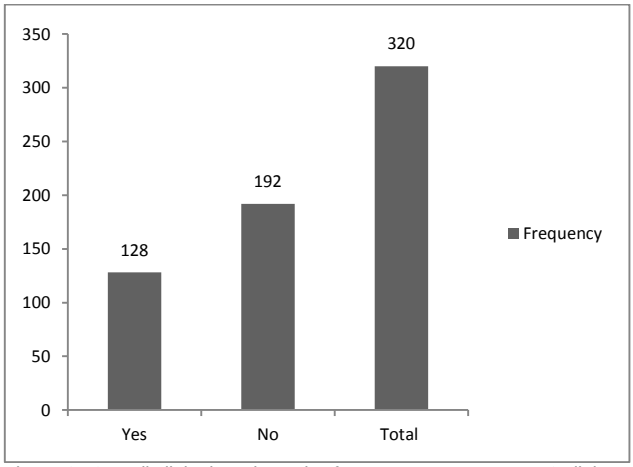

Figure 2: Overall diabetic retinopathy frequency amongst type 2 diabetes mellitus patients

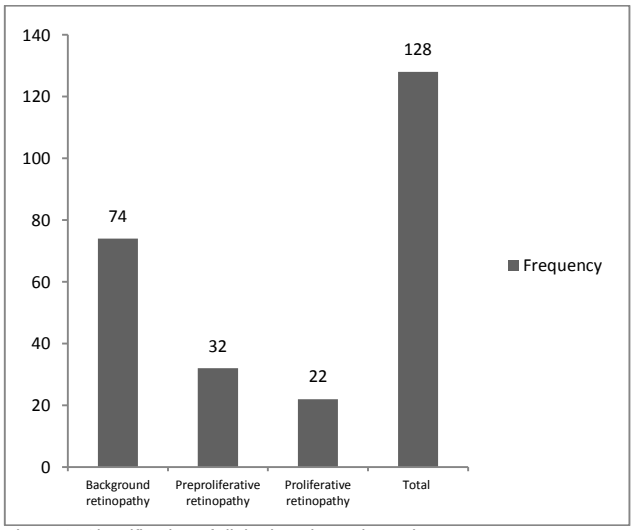

Figure 3: Classification of diabetic retinopathy patients

DISCUSSION

According to estimates, among persons between the ages of 20 years and 74 years, diabetic retinopathy accounts for the majority of blindness cases [16]. According to data from the United Kingdom Prospective Diabetes Study (UKPDS), there is a linear association between the risk of micro-vascular problems and blood sugar levels. For every percentage point lower HbA1C, there is a 35% lower chance of micro-vascular complications. An analysis showed that the problem is becoming worse. Type 1 and type 2 diabetes prevalence increased from 2.8% to 4.3% in the general population of the UK between 1996 and 2005, according to the data [17]. According to the findings of the Action to Control Cardiovascular Risk in Diabetes Accord Eye research, intense treatment for diabetes unquestionably makes the situation much better. The study found that after four years, the rates of advancement of diabetic retinopathy were 7.3% among patients receiving intensive glycaemia treatment, but they were 10.4% among patients receiving conventional medication [18].

In our study there were 176 (55%) male patients while female patients were 144 (45%). The mean age (SD) of the enrolled patients was 44 (12.5) years. The mean (SD) diabetes mellitus duration was 5.21 (2.56) years. The overall diabetic retinopathy frequency was 128 (49%) in type 2 diabetes mellitus patients. Based on classification of diabetic retinopathy, 74 (57.81%) patients were observed with Background retinopathy, 32 (25%) patients were observed with Preproliferative retinopathy while only 22 (17.19%) patients were observed with Proliferative retinopathy. A study carried out by M A Shaikh et al. reported 25.5% prevalence of diabetic retinopathy amongst type 2 diabetes mellitus patients which is not in accordance with our study but they reported comparable frequency of Background retinopathy, Preproliferative retinopathy and Proliferative retinopathy by classifying cases of diabetic retinopathy [19]. A previous randomized control study reported 40.1% diabetic retinopathy prevalence amongst type 2 diabetes mellitus patients whic is almost same with our study findings [20].

According to Raza et al., 73.9% patients had diabetic retinopathy, the majority of whom had mild to severe disease [11] Yet, their research, sample size was lower than our study. Additionally, their findings showed a greater frequency of reported diabetic retinopathy. Our findings conflict with a research by Memon et al., which found that only 24.7% of individuals had diabetic retinopathy [13]. In their study, they enrolled all the individuals with type 1diabetes, type 2 diabetes, and gestational diabetes mellitus; therefore it's possible that the large sample size in their research explains these variations. In contrast to the findings of our research, Sadiq et al. found 22.7% of type 2 diabetes mellitus patients with diabetic retinopathy [14] in Lahore. The prevalence of diabetic retinopathy was found to be 28.78% in a systemic review done in Pakistan, with a broad range of 10.6% to 91.3% in various investigations [14]. According to a recent meta-analysis, Asians had the lowest incidence of diabetic retinopathy, with a worldwide prevalence of 22.27% [21]. It demonstrates that there are variations in the diabetic retinopathy prevalence around the globe. It's important to focus on educating patients about diabetes mellitus, its consequences, and the advantages of strict glycaemic control. Education specialists, nurses, medical professionals, and the media must all contribute to this goal. Each patient must undergo routine retinal screening for diabetics, and they should be instructed to schedule follow-up appointments on a regular basis. Additionally, seminars should be held to raise awareness of diabetic retinopathy. This research has the drawback of only using data from one centre. In order to avoid blindness caused by diabetic retinopathy, a countrywide study is required so that the problem may be addressed as a national concern and appropriate precautions can be implemented.

CONCLUSION

Our study concludes that the diabetic retinopathy prevalence is very high amongst type 2 diabetic patients. The prevalence of diabetic retinopathy is significantly increased due to lack of awareness and ophthalmic assessment. All the type 2 diabetic individuals should have routine ophthalmic evaluations.

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