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ORIGINAL ARTICLE

An Assessment of Retinopathy in Type-II Diabetics along with Microalbuminuria

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ABSTRACT

Objective: To assessment of retinopathy in type-II diabetics along with microalbuminuria at tertiary care hospital.
Material and methods: This study was done at Department of Medicine, D.G Khan Hospital, D.G Khan from April 2020 to October 2020 over the period 6 months. Total 295 patients of type-II diabetes mellitus along with microalbuminuria having age between 45-80 years either male or female were selected. Diabetic retinopathy was evaluated in selected patients.
Results: Total 295 patients were selected according to inclusion criteria. The mean age of patients was 58.13 ± 9.412 years. Out of 295 patients, retinopathy was noted in 67 (23%) patients. Out of 147 (49.83%) male patients, retinopathy was noted in 39 (26.5%) patients. Out of 148 (50.17%) female patients, retinopathy was noted in 28 (18.9%) patients. Statistically insignificant association of retinopathy with gender was noted with p value 0.119.
Conclusion: Findings of this study showed a higher percentage of retinopathy in patients of type-II diabeties along with microalbuminuria. Most of the victims were males as compared to females and no association of development of retinopathy with gender was detected. Higher number of patients belonged to 4th and 5th decade of life. Four to five years of duration was noted among the half of the study population.
Keywords: Retinopathy, Diabetes mellitus type II, Microalbuminauria

INTRODUCTION

According to International Diabetic Federation (IDF) database, Pakistan stands on 7th number in list of countries where diabetes mellitus (DM) rate are high. In 2007, about 6.9 million population was suffering from DM.[2] In different studies conducted by Diabetic Association of Pakistan, 10% of peoples aged ≥ 30 years were suffering from type-II DM. In 3rd world countries like Pakistan, undiagnosed diabetes and related retinopathy because of virtually non-existent primary eye care setups in general population, is related with the impaired visual status of community.[3] There is an association between microvascular complication and DM. With advancing age, it is the main cause of visual loss.[4] Cardiovascular diseases are the leading cause of mortality in type-II DM, despise of mortality and morbidity of neuropathy, nephropathy and retinopathy.[6] The gradual progression of retinopathy involves mild abnormalities growing into proliferative retinopathy. Glaucoma, retinal detachments and hemorrhages and blindness may become its ending result. Determents for developing DR include diabetes. Micro-albuminuria, lipids, smoking, BMI, hypertension, age duration of diabetes and gender are the causes DR.[7] Life style changes like diet, physical exercises and oral hypoglycemic agents are the most effective management of type-II diabetics. Foot care, retinopathy, nephropathy monitoring and peripheral diabetic neuropathy should also be acknowledged as health issues. Important parameters in disease management including HbA1C, blood glucose level and high postprandial serum glucose can be lowered by many available oral hypoglycemic agents. FDA has approved many oral hypoglycemic agents that are efficient in cases of type-II diabetes cases. Patient's cofactors, contraindicating disease, tolerability and side effect profile play a significant role in selecting the best agent.[8]

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MATERIALS AND METHODS

This was a cross sectional study done at Department of Medicine, D.G Khan Hospital, D.G Khan from April 2020 to October 2020 over the period 6 months. Total 295 patients of type-II diabetes mellitus along with microalbuminuria having age between 45-80 years of both gender were selected. Prior permission was taken from hospital committee. Already diagnosed and under treatment patients for diabetic retinopathy (on history and medical record), already under treatment for microalbuminuria (on history and medical record), not willing to participate in the study and hypertensive patients with retinopathy were excluded from the study.

History of all the patients was taken and routine investigation was done. Than all the patients were assessed by a senior consultant ophthalmologist for diabetic retinopathy. Findings were noted on proforma.

Computer software SPSS was used to analyzed the collected data. Age was presented as Mean and SD. Gender and diabetic retinopathy were presented as frequencies and percentages. Chi-square teas used to detect the association of diabetic retinopathy with age group, gender and duration of diabetes mellitus.

RESULTS

Total 295 patients were selected according to inclusion criteria. The mean age of patients was 58.13 ± 9.412 years. Out of 295 patients, retinopathy was noted in 67 (23%) patients. (Fig. 1)

Out of 147 (49.83%) male patients, retinopathy was noted in 39 (26.5%) patients. Out of 148 (50.17%) female patients, retinopathy was noted in 28 (18.9%) patients.

Association between DR and gender was not significant (P = 0.119) statistically. (Table 1)

Three age groups were created i.e. age group 45-57 years, age group 58-68 years and age group 69-80 years. Total 148 (50.17%) patients belonged to age group 45-57 years and retinopathy was noted in 36 (24.3%) patients. Out of 100 (33.90%) patients of age group 58-68 years, retinopathy was seen in 19 (16%) patients. Out of 47 (15.93%) patients of age group 69-80%) patients, retinopathy was noted in 12 (25.5%) patients. Association between DR and age groups was not significant (P = 0.544). (Table 2)

Out of 129 (43.73%) patients of 1-3 years duration of DM group, retinopathy was noted in 31 (24.00%) patients. Among the 166 (56.27%) patients of 4-5 years of duration of DM, retinopathy was noted in 36 (21.7%) patients. Statistically insignificant association of retinopathy with duration of DM was noted with p value 0.634. (Table 3)

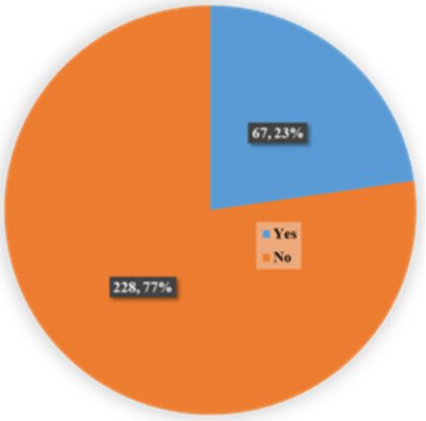

Figure 1: Frequency of retinopathy

Table 1: Association of retinopathy with gender

Gender	Retinopathy		Total	p-value
	Yes	No		
Male	39 26.5%	108 73.5%	147 (49.83%)	**0.119**
Female	28 18.9%	120 81.1%	148 (50.17%)	
Total	67 22.7%	228 77.3%	295	

Table 2: Association of retinopathy with age group

Age groups	Retinopathy		Total	p-value
	Yes	No		
45-57	36 24.3%	112 75.7%	148 50.17%	0.544
58-68	19 19.0%	81 81.0%	100 33.90%	
69-80	12 25.5%	35 74.5%	47 15.93%	
Total	67 22.7%	228 77.3%	295	

Table 3: Association of retinopathy with duration of DM

Duration of DM (Years)	Retinopathy		Total	p-value
	Yes	No		
1-3	31 24.0%	98 76.0%	129 43.73%	**0.634**
4-5	36 21.7%	130 78.3%	166 56.27%	
Total	67 22.7%	228 77.3%	295	

DISCUSSION

The purpose of the present study was to assessment of retinopathy in type-II diabetics along with microalbuminuria at tertiary care hospital. In our study, mean age of patients was 58.13 ± 9.412 years. Out of 295 patients, retinopathy was noted in 67 (23%) patients. Out of 147 (49.83%) male patients, retinopathy was noted in 39 (26.5%) patients. Out of 148 (50.17%) female patients, retinopathy was noted in 28 (18.9%) patients. Statistically insignificant association of retinopathy with gender was noted with p value 0.119. In one study by Li N et al[14] out of 1100 patients, DR was noted in 32.1% patients which is comparable with our study. Similarly Jammal H et al[15] reported frequency of DR as 7.9%. In study of Kostev K et al[16] out of 12,524 patients of type-II diabetes mellitus, DR was noted in 19% patients. Looker HC et al[17] reported prevalence of DR as 19.3%. In another study conducted by Buková L et al[18] showed that DR was found in 0.85% male patients and 1.2% in female patients. A study conducted by Al-Zuabi H et al[19] showed that out of the 92 diabetics, DR was present in 7.6% patients. In a local study conducted in Karachi by Mahar PS et al[20] found DR in 27.43% patients out of 19211 patients. In another local study conducted by Hayat AS et al[21] total 100 patients were selected. Mean age of the patients was mean age 45.1 ± 3.2 years. Among these 40% patients were males and rest were females. DR was seen in 17% patients. Manaviat MR et al[22] reported frequency of DR as 39.3%.

The variation in rates could be as a result of the different methods used in those studies, the population and or the races involved, or variations in controlling blood sugar levels. Cross sectional studies, referral biases and small sample size are major limitations due to which findings are very difficult to generalize in large populations. Its strength lies in the fact that this is a first study of its kind which planned to assess the frequency of DR in population our area by using photographs of retina and standard grading technique.

CONCLUSION

Findings of this study showed a higher percentage of retinopathy in patients of type-II diabeties along with microalbuminuria. Most of the victims were males as compared to females and no association of development of retinopathy with gender was detected. Higher number of patients belonged to 4th and 5th decade of life. Four to five years of duration was noted among the half of the study population.

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