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RISK FACTORS ASSOCIATED WITH DIABETIC RETINOPATHY
(A study of 438 cases at CMC Larkana).

1. **SHAHID JAMAL SIDDIQUI**
DOMS, FCPS
2. **MUHAMMAD AFZAL PECHUHO**
DOMS, FCPS
3. **SAYED IMTIAZ ALI SHAH**
FCPS
4. **FOUZIA SHAIKH**
DOMS
5. **ABDUL QADIR SHAIKH**
DOMS

1. ***Associate Professor***
Department of Ophthalmology
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA SINDH.
2. ***Assistant Professor***
Department of Ophthalmology
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA SINDH.
3. ***Professor of Ophthalmology***
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA SINDH.
4. **Department of Ophthalmology**
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA SINDH.
5. **Department of Ophthalmology**
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA SINDH.

Address for Correspondence:
DR. SHAHID JAMAL SIDDIQUI
Associate Professor of Ophthalmology
BANGLOW# 05 TYPE II,
CMC STAFF COLONY
LARKANA.
Cell# 0300-3410560

ABSTRACT

PURPOSE: *To evaluate the risk factors related to diabetic retinopathy.*
DESIGN: *Prospective, non randomized hospital based descriptive study.*
PATIENTS & METHODS: *The hospital based descriptive study of 438 patients was conducted at the Department of Ophthalmology Chandka Medical College and Hospital Larkana, from December 2003 to December 2008. The patients were selected from the Retina Clinic. After history and clinical examination which included direct and indirect ophthalmoscopy the diagnosis of diabetic retinopathy was established. Patient's data were documented such as sex, age, duration of diabetes, history and duration of hypertension, antihypertensive medication and status of glycemic control. Blood pressure of every patient was recorded in supine position by mercury sphygmomanometer. Hypertension was defined as mean systolic pressure of 160mmHg or greater and mean diastolic pressure of 95mmHg or greater. The following laboratory investigations were carried out such as blood sugar, lipid profile, serum creatinine, blood urea, urine DR to exclude hypercholesterolemia and nephropathy associated with diabetic retinopathy. The data was analyzed and the correlation of risk factors to diabetic retinopathy were evaluated by odd ratio.*
RESULTS: *In this hospital based descriptive study of 438 cases of diabetic retinopathy 270 (61.64%) were male and 168(38.35%) female. The patients presented were between 14 to 75 years of age with mean age of 51.63 years. About 408 patients (93.5%) were above 40 years of age. Duration of diabetes mellitus ranged from 1 to 30 years mean duration 11.045 years. All patients presented with poor metabolic control. About 221 patients were hypertensive i.e 50.28% and 57 patients had increased serum cholesterol levels (13.01%) and increased levels of urea, creatinine were observed in 14 patients (3.19%).*
CONCLUSION: *The study results suggest that diabetic retinopathy has strong association with poor metabolic control along with hypertension as well as duration of the diabetes mellitus.*

KEY WORDS: Diabetic Retinopathy, Metabolic Control, Hypertension, Serum Cholesterol, Blood Urea, Creatinine.

INTRODUCTION

Diabetes mellitus is a major health problem in western countries as well as in Pakistan. Among 140 million population of Pakistanis 7 million people have diabetes mellitus. According to WHO estimation for prevalence of diabetes mellitus Pakistan is 8th in the world and by the year 2025 is expected to rise to the 4th postion.[1,2]

Diabetic retinopathy (DR) is a leading cause of blindness world wide, is a microvascular complication of diabetes characterized by increased vascular permeability and haemostatic abnormalities result in retinal non-perfusion and neovascularization.[3,4] The risk factors for the development of diabetic retinopathy are duration of diabetes, poor metabolic control, hypertension, pregnancy and nephropathy.[5]

Improved understanding of the role of risk factors in the pathogenesis of diabetic retinopathy provides an opportunity for ophthalmologists and other diabetic health care professional to improve the health care would result in effective treatment. The purpose of this study is to evaluate the risk factors related to diabetic retinopathy.

PATIENTS & METHODS

The hospital based descriptive study of 438 patients was conducted at the Department

of Ophthalmology Chandka Medical College and Hospital Larkana, from December 2003 to December 2008. The patients were selected from the Retina Clinic. After history and clinical examination which included direct and indirect ophthalmoscopy the diagnosis of diabetic retinopathy was established. Patient's data were documented such as sex, age, duration of diabetes, history and duration of hypertension, antihypertensive medication and status of glycemic control. Blood pressure of every patient was recorded in supine position by mercury sphygmomanometer. Hypertension was defined as mean systolic pressure of 160mmHg or greater and mean diastolic pressure of 95mmHg or greater. The following laboratory investigations were carried out such as blood sugar, lipid profile, serum creatinine, blood urea, urine DR to exclude hypercholesterolemia and nephropathy associated with diabetic retinopathy. The data was analyzed and the correlation of risk factors to diabetic retinopathy was evaluated and notified.

Table -1

Patients Data

Total Number of Patients	**438**
Male	270 (61.64%)
Female	168 (38.35%)
Age	14-75 years
Mean Age	51.63 years
Above 40 years of Age	408 (93.5%)

Table – 2

Factors associated with diabetic relinopathy

Duration of Diabetes	**1-30 Years**
Mean Duration	11.045 Years
Hypertensive	221(50.28%)
Increased Serum Cholestrol Level	57(13%)
Increased Urea, Creatinine Levels	14 (3.19%)

RESULTS

In this hospital based descriptive study of 438 cases of diabetic retinopathy 270 (61.64%) were male and 168(38.35%) female. The patients presented were between 14 to 75 years of age with mean age of 51.63 years. Altogether 408 patients (93.5%) were above 40 years of age (Table 1). Duration of diabetes mellitus ranged from 1 to 30 years mean duration 11.045 years. About 221 patients were hypertensive i.e 50.28% and 57 patients had increased serum cholesterol levels (13.01%) and increased levels of urea, creatinine were observed in 14 patients (3.19%). Blood Sugar levels were elevated in almost all the patients (Table 2).

DISCUSSION

Diabetic Retinopathy is a major cause of blindness among the working age group.[3,6,7.] Because diabetes and its complications are a public health problem data on the risk factors associated with diabetic retinopathy will help in formulating prevention from diabetic retinopathy or at least delaying the onset.

In our study of 438 cases the mean age of presentation was 51.63 years. Where as Raman and his colleagues in their analysis of 1414 subjects mean age was 56.32 ± 0.2 years.[8] The duration of diabetes of more than 10 years was analyzed as a risk of developing retinopathy, in our study the mean duration of diabetes was 11.05 years which is similar as mentioned in Wisconsin study i.e 11.8 years.[9] where as Raman and his colleagues reported that those who had more than 15 years of duration had a 6.43 times risk of developing retinopathy.[8] This study shows that frequency of diabetic retinopathy individuals more than 40 years of age was 93.15% and more common in men. This observation of male preponderance is in agreement with the findings of other studies such as CURES , the Andhra Pradesh Eye Disease Study, and United Kingdom Prospective Diabetes Study. However the exact reason for male predominance has not been determined.[10]

The frequency of diabetic retinopathy among subjects with poor glycaemic control was high in our study. About 221 patients out of 438 were recorded as hypertensive (50.22%). 57 patients had high serum cholesterol levels (13%). Arbab and his colleagues have reported significant correlation of diabetic retinopathy with hypertension in their study of 100 cases.[1]

CONCLUSION

The study results suggests that diabetic retinopathy has strong association with hypertension along with poor metabolic control as well as duration of the diabetes mellitus.

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