Original Article

Fundoscopic Comparison of Retinal Hemorrhages After Retinal Venous Occlusion in Patients with Diabetic Mellitus

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ABSTRACT

Objective: To compare variability of retinal hemorrhages at fundoscopy after retinal vein occlusion in patients with Diabetes Mellitus.

Study Design: A cross-sectional study

Place and Duration of Study: This study was conducted at the Sindh Institute of Eye Hospital, Hyderabad from 1st January 2019 to 31 December 2019.

Materials and Methods: There are 89 patients aged 30 to 70 years or more, both male and female in this study. Patients with newly diagnosed central retinal occlusion were included. Diabetes mellitus was verified in 89 of the patients, and they were all under the age of 35 when they were treated. Utilizing Slit Lamp photography and a close examination of the fundus of a 90 D Volk Lens (RETINAL CAMERA-TRC-50EX). Initiated by the scientists, and later confirmed by an expert ophthalmologist, their ultimate diagnosis was correct. Version 20 of the Stata statistical programme for social science has been entered and tested by the researchers.

Results: A total of 89 diabetics with retinal vein occlusion (RVO) had fundoscopy. Patients ranged in age from 54.93 years old on average plus 8.854 years on the standard deviation (33 to 70 years). In this study, there were somewhat more women than men: 46 women (51,6%) and 43 men (48.31 percent).

We found a link between retinal haemorrhage and diabetes mellitus in patients with retinal vein blockage in this study. Dot blot haemorrhages occurred in 37 diabetic patients, while flame formation haemorrhages occurred in 29 diabetic patients.

Conclusion: This research concluded that in patients with retinal vein occlusion (RVO) associated with diabetes mellitus a large number of different forms of retinal hemorrhogen is present. It has been shown that dot blot haemorrhages are correlated with diabetes or high pressure in both the retinal vein occlusion, although in diabetic patients they were significantly higher. In retinal vein occlusions with diabetes, flame-like bloods were also observed but were more frequent in diabetic patients.

Key Words: Fundoscopy, Retinal vein occlusion, Diabetes Mellitus.

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INTRODUCTION

Retinal vine occlusion is the second most prevalent vision-threatening retinal vascular disorder to lead to blindness after diabetic retinopathy.[1] The prevalence of retinal occlusion ranges from 1.6% to 1.9%.[2,3]

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The number of people with retinal occlusion (aged 30 or older) has been estimated at roughly 16.4 million in the United States, Europe, Asia, and Australia, with an increase of up to 16 million expected by 2040.[4,5] Major risk factors include growing old, systemic hypertension, diabetes mellitus, and glaucoma 6 and hypermetropia.[6] Patients with retinal occlusion typically have a sudden loss of vision in one eye, with only a few also experiencing loss of vision in both eyes as well as visual field defects.[7,8]

The common fundus findings of the retinal vein occlusion are expansion and tortuosity of the retinal veins, haemorrhages in the form of dots and flamm, swollen optic discs, spots of cotton and macular edoema and exudates of lipids.[9,10]

This study has been conducted with diabetes Mellitus to identify retinal haemorrhage cases in the occlusion of the retina based on fundus findings.

MATERIALS AND METHODS

From 1st January 2019 to 31 December 2019, researchers conducted a cross-sectional study at Sindh Institute of Eye Hospitaller Hyderabad on 89 patients aged 30 to 70 years or more, both male and female. Patients with newly diagnosed central retinal occlusion were included. Diabetes mellitus was verified in 89 of the patients, and they were all under the age of 35 when they were treated. Utilizing Slit Lamp photography and a close examination of the fundus of a 90 D Volk Lens (RETINAL CAMERA-TRC-50EX). Initiated by the scientists, and later confirmed by an expert ophthalmologist, their ultimate diagnosis was correct. Version 20 of the Stata statistical programme for social science has been entered and tested by the researchers.

According to the inclusion and exclusion criteria of Eye Hospital Hyderabad's Sindh Ophthalmology and Visual Sciences Department, patients were enrolled in the study after approval of Synopsis, and underwent an in-depth fundus examination with a 90 D Volk Lension Slit Lamp and a Fundus Photography examination (RETINAL CAMERA-TRC-50EX). The first round of testing was completed, and a board-certified ophthalmologist later confirmed his final diagnosis with additional tests.

Version 20 of the social sciences statistics package has been entered and examined. With respect to a continuous variable like age, the means and SDs were calculated. Following retinal vein blockage, the frequency and percentage of clinical retinal haemorrhages were assessed in diabetic patients. Result. Chi square tests and p 0.05 were used to compare different types of diabetic retinal haemorrhage.

RESULTS

A total of 89 patients with diabetes mellitus who had retinal vein occlusion (RVO) were examined with fonoscopy at the Sindh Institute of Ophthalmology and Visual Sciences in Hyde to compare the variability in retinal haemorrhage following RVO in diabetic patients. The average age + SD (range) was 54.93 + 8.854 years, with a minimum age of 33 and a maximum age of 70.

Females made up 51.6 percent of the sample, while males made up 43 percent. Females had a lower percentage than males (48.31 percent).

The patients were separated into three age groups. The majority of patients (67.4%) were between the ages of 51 and 70; 21 (23.6%) were between the ages of 41 and 50; and 8 (9.0%) were between the ages of 31 and 40. Most case in this study had RVO on their ght side of 56 (63%), while 33(37%) had RVO on the left.

In this study, the majority of RVO patients were found to be more commonly affected i.e. 49 (55%), whereas the 40(45%) of patients were more commonly affected i-e 49 (50%). Diabetes Mellitus was also affected.

The study consists of two types, i.e. diabetes Mellitus RVOs, 46 (93.9%), 43 (87.7%) and hypertension RVOs is hemorrhagic in flame form, with 49 (55% of total patients) being hypertensive.

While the diabetes as a risk factor indicated a hemorrhea of 37 (92.5%) dot-blots and 29 (72.5%) flammable bleeding among 40(45% of total patients) patients with diabetes.

This study compared different types of retinal haemorrhaging with the test X^2 (chi square), X^2 tab value for two samples = 5,991 and p< 0,05 which is considered significant in patients with retinal vascular occlusion (RVO) with diabetes mellitus.

Ini37 diabetic patients, the blot haemorrhage was measured as 1.7 in chi square, flame-shaping haemorrhages in 29 diabetic patients and in 43 high-patients and the calculated value was 4.26 in a chi square examination. The calculation was based on a calculation of 1.7 in the Chi square.

The best correction of the RVO patients' visual acuity BCVA on 1st visit in this study is 6/18 in 6.74%, 6/18/60 in 28% and 6/60% in 65%.

The symptoms in RVO patients were 65.1% less than one month, 24.7% within one to two months, and 10.1% between two and three months. In this study 65.1% were seen.

Table No.1: Baseline characteristics of the patients (n = 89)

	Frequency	%
Mean age ± SD (range)	54.932 ± 8.854 (33 to70 years)	-
Gender		
Male	43	48.31%
Female	46	51.6%
Age (in groups)		
31-40 years	8	9%
41-50 years	21	23.6%
51-70 years	60	67.4%
Laterality of Eyes		
Right eye	56	63%
Left eye	33	37%
Risk factor		
Diabetes Mellitus	40	45%
Hypertension	49	55%
BCVA		
>6/18	6	6.74%
6/18 – 6/60	25	28%
<6/60	58	65%
Duration		
<1 Month	58	65.1%
1-2 Months	22	24.7%
2-3 Months	9	10.1%

Table No. 2: Outcome of RVO Patients for Different Type of Retinal Hemorrhages in Diabetes Mellitus (n = 89)

Outcome	Retinal Hemorrhages		Total n = 89
	Yes	No	
Dot blot hemorrhages DM (n = 40)	37 (92.5%)	3 (7.5%)	40 (45%)
Flame shaped hemorrhages DM (n = 40)	29 (72.5%)	11 (27.5%)	40 (45%)

Table No.3: Different types of retinal hemorrhages after RVO in Diabetes Mellitus (n = 89)

Retinal hemorrhages (in RVO)	Diabetes mellitus	Calculated / test value
Dot blot	37	1.7
Flame shaped	29	4.25

DISCUSSION

Joo Yong Lee et al.[11] studied 557 individuals in Korea and found that RVO affected people of various ages. 4.1% of the population was under the age of 40, 16.6% were between the ages of 40 and 49, 60.0% were between the ages of 50 and 70, and 18.3% were over the age of 70. Our sample included 9 percent of people in their 30s and 40s, 23.6% in their 41s and 50s, and 67.3 percent in their 50s and 70s. Both investigations came to similar conclusions, with the exception of the fact that Joo Yong Lee's study covered individuals younger than 30.

Tyler Hyungtaek Rim et al,[12] have stated, in a Korean analysis, that 83.2 percent of the risk factor for RVO was hypertension, 65.2 per cent was found to have diabetes mellitus excluding a certain number of other minor risk factors. Although 55% of patients with the risk factor hypertension and 45% of the risk factor for diabetes mellitus were identified in our study. The disparity between our research and Tyler H, who also selected hyperLipidemia, chrónico renal failure, acute MI, stroke, is due to our selection of only two risk factors. But our research is well correlated with Tyler's study although there are few variations.

Researchers E. Ramadevi and colleagues[13] examined retinal vein occlusions. The results of an Indian clinical research showed that 51% of patients in the right and left eyes were impacted by the right eye, compared to 47,000 in the left eye, and in the connection eye compared to 63,000 in the right eye. Possibly, the sample size differs in laterality, as ours is larger than E. Ramadevi's.[13]

Over 60% of the eyes had moderate to no retinal haemorrhages, and 7 to 16% of the eyes had major retinal blood haemorrhages, according to Hayreh SS et al,'s research.[10] Around 1 percent had no retinal blockages, 42% had severe retinal bleeding, 22% had serious retinal blooms, and 13% had mild retinal bleeding in ischemic RVO. About 53% of the patients were suffering from life-threatening haemorrhage. There was no difference between diabetes and hypertension RVO when it came to retinal bleeding, while diabetic RVO had 28% more haemorrhages of the flame type than hypertensive RVO when it came to blotted bleeding. Both trials show the emergence of RVO-related retinal imperfections. As retinal haemorrhages are divided into three different kinds in RVO, Hayreh SS defined the retinal bleeding as mild, moderate, and severe.

Patients >6/18 in three (8.82 percent) had the best visual acuity correction, patients 6/18-6/60 in seven (20.58) had the best correction, and patients 6/60 in twelve(70.58) had the worst visual acuity correction, meaning that most patients had BCVA less than 6/60 while BCVA was >6/18 in six(6.74 percent), in two patients (28%), and in one of them 10 in twelve (28%).[7] However, despite the fact that our sample size is larger, this research closely resembles our own.

Researchers E. Ramadevi and colleagues[13] found that RVO symptoms appeared within one month in 31.3 percent of patients, 19.6 percent in the first two months, 25.5% in the third month and 23.5 percent in months six to 12 while RVO symptoms appeared within a month in 65.1 percent of patients and were found to be less than a month in 65.1% of those patients. RVO and found that 31.3% of patients had the period. However, E. Ramadevi included patients who had symptoms for up to one year, while our sample consisted of patients who had symptoms for no more than three months.[13]

CONCLUSION

Patients with retinal vein occlusion (RVO) and diabetes mellitus have a wide variety of retinal hemorrhogens, according to our findings Diabetic patients had significantly more dot blot haemorrhages, which have been linked to both retinal vein occlusion and diabetes. In retinal vein occlusions with diabetes, flame-like bloods were also observed but were more frequent in diabetic patients.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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