

Research Article

A study of evaluation of various risk factors of retinal vein occlusion

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ABSTRACT

Background: A study of various ocular & systemic risk factors in Retinal Vein Occlusion (RVO) at tertiary eye care centre.

Methods: A prospective study included 50 eyes of 50 patients, in period of September 2010 to August 2012. Inclusion criteria: 1. Age >25 years, 2. All newly diagnosed cases of vein occlusion. Exclusion criteria: 1. Age <25 years 2. All other ocular diseases causing significant visual impairment. A detailed history, ophthalmic & systemic examinations with all necessary investigations-as and when required were done.

Results: In our study, RVOs were more common in males – 26 (52%) & in 56-65 years of age group - 16 (32%). BRVO (Branch Retinal Vein Occlusion)s were more common than CRVO (Central Retinal Vein Occlusion) - Nonischemic (26%) >Ischemic (24%). In risk factors - most common was hypertension - in 38 (76%) patients. Followed by descending order, hyperlipidemia 27 (54%) >diabetes mellitus 16 (32%) >tobacco 14 (28%) >hyper homocystinemia 4 (8%) >severe alcohol 2 (4%). The complications were more in ischemic than Nonischemic-CRVO >BRVO - they were macular edema 43 (86%) >neovascularization at iris - 14 (28%) >neovascularization at angle - 10 (20%) >neovascular glaucoma – 4 (8%).

Conclusion: RVOs are more common with increasing age, in males & most common risk factor is hypertensive. Most common cause for vision loss is macular edema - ischemic >non-ischemic.

Keywords: Retinal vein occlusion, Macular edema, Glaucoma, Hypertension

INTRODUCTION

Retinal vein occlusion is a common form of retinal vascular disease, especially in middle-aged and older individuals. The diagnosis is based on the funduscopic finding of retinal vein dilatation in association with retinal hemorrhages and cotton-wool spots. The pathology can involve the entire venous system or can be limited to a branch of the central retinal vein. Retinal vein occlusion can be distinguished clinically from diabetic retinopathy and other retinal diseases. Treatment for the acute phase of retinal vein occlusion has been disappointing. However, some late complications, such as

persistent macular edema and neovascularisation of the iris and retina, respond well to retinal photocoagulation. The family physician has an important role in detecting and controlling risk factors for retinal vein occlusion, including hypertension, diabetes mellitus and hyper viscosity syndromes. Generally, RVO tends to be considered as one disease which is not only incorrect but also cause of most of the confusion.

Aims and objectives

1. To study the incidence of retinal vein occlusion.

- To study the various clinical presentations of retinal vein occlusion.
- To study the various systemic & ocular risk factors of retinal vein occlusion.

METHODS

This study has been conducted in a tertiary eye care centre, between the period of September 2010 to August 2012. In this study 50 eyes of 50 patients were included as per the inclusion and exclusion criteria:

Inclusion criteria

- Age more than 25 years.
- All hypertensive patients.
- All diabetic patients.

Exclusion criteria

- Age greater than 85 years, less than 25 years.
- Associated other ocular diseases causing significant visual impairment.
- Immunocompromise, pregnant, has known HIV & HbsAg positive Patients.

A detailed history of patients was taken, BUT special attention was given to the risk factors of retinal vein occlusion, details of HT, DM, hyperlipidemia, obesity, altered hematocrit level, smoking, tobacco chewing, alcohol consumption, use any systemic drugs for prolong periods-like steroids, collagen vascular disorders. The clinical examination was performed including: visual acuity using Snellen’s chart / E chart with correction, anterior segment examination including gonioscopy, posterior segment examination using direct ophthalmoscope, indirect ophthalmoscope and slit lamp biomicroscopy using a +78D lens, Fundus photograph along with necessary investigations as and when required. RVO was determined by grading Fundus photographs. Then the patients were advised systemic workup for retinal vein occlusion & appropriate treatment given.

RESULTS

On the basis of data collected according to the proforma following observations and results were obtained: In age wise distribution, 1 (2%) patient in 25-35 years, 9 (18%) patients in 35-45 years, 14 (28%) patients in 46-55 years, 8 (16%) patients in 66-75 years, while 2 (4%) patients are in >75 years. So, most common group affected in our study is 56-65 years (Table 1). In sex wise distribution, incidence is more common in male 26 (52%) than female 24 (48%), but not significant (Figure 1). The age & sex wise distribution shows female are more common in 46-

55 years, while males are more common in 66-75 years (Table 2).

Laterality wise, the right eye - 26 (52%) is more common than left eye - 24 (48%) in our study. In risk factors, hypertension is most common risk factor associated with retinal vein occlusion, with decreased frequency, hyperlipidemia in 27 (54%), diabetes mellitus 16 (32%), tobacco chewing 14 (28%), hyperhomocystein in 4 (8%) & lastly alcohol consumption in 2 (4%) (Figure 2).

The Vision loss is more in CRVO than BRVO, also more in ischemic than non-ischemic (Figure 3). In our study, CRVO 23 (46%) is more common than BRVO 21 (42%), While Macular BRVO 4 (8%) & HEMICRVO 1 (2%) is less common. In case of complication, macular edema is most common in 43 (86%) patients, while neovascular glaucoma was found in 10 (20%) patients, which mainly in ischemic CRVO (Figure 4).

Table 1: Age wise distribution (N=50).

Age	Total	Percentage
25-35	1	2
35-45	9	18
46-55	14	28
56-65	16	32
66-75	8	16
>75	2	4
Total	50	100

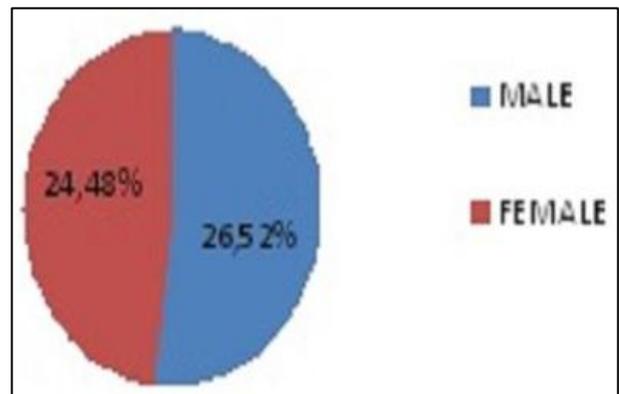


Figure 1: Gender wise distribution.

Table 2: Age and sex relation (N=50).

Age	Male	Male%	Female	Female%
25-35	1	3.84	0	0
35-45	5	19.23	4	16.66
46-55	5	19.23	9	37.0
56-65	8	30.76	8	33.33
66-75	6	23.07	2	8.33
>75	1	3.84	1	4.16
Total	26	52	24	48

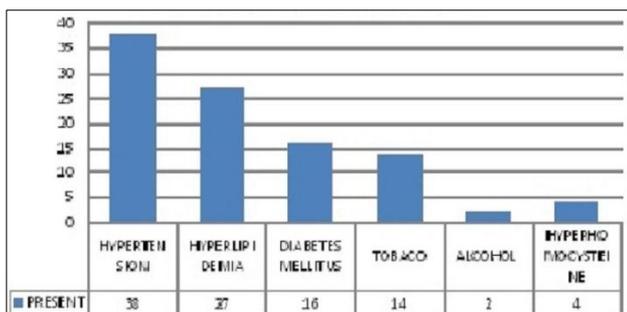


Figure 2: Relation with associated systemic risk factors (N=50).

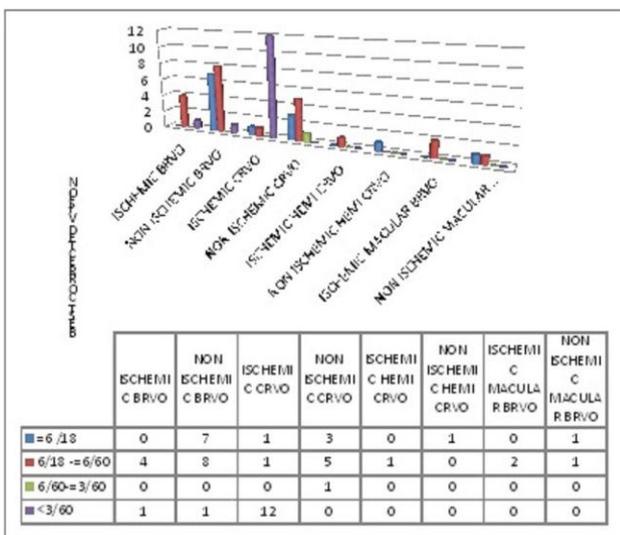


Figure 3: Range of visual acuity (N=50).

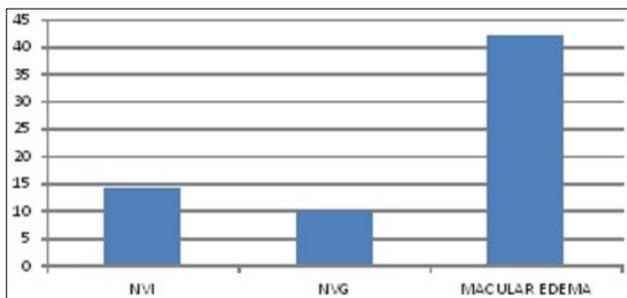


Figure 4: Complications in retinal vein occlusion.

DISCUSSION

In OUR study 50 eyes of 50 patients were included as per the inclusion and exclusion criteria mentioned earlier.

In case of incidence of CRVO, the Hisayama study:³ nine-year incidence and risk factors for retinal vein occlusion in a general Japanese population: the 9-year cumulative incidence of RVO was 3.0% (2.7% for BRVO and 0.3% for CRVO). The Hisayama study:¹ Prevalence and systemic risk factors for retinal vein occlusion in a general Japanese population: the prevalence of RVO was

2.1% (2.0% for branch RVO and 0.2% for central RVO). The Beaver Dam eye study:⁴ The incidence of retinal branch vein occlusion over the 5-year period was 0.6% and of central retinal vein occlusion 0.2%.

According to Beaver Dam eye study⁴ the incidences of retinal vein occlusions varied with age and were similar in men and women. The Hisayama study:³ nine-year incidence and risk factors for retinal vein occlusion in a general Japanese population suggest that the age-specific cumulative incidence of RVO significantly increased with age (P for trend = 0.03), but not significant difference in gender distribution.

In risk factors evaluation, in our study hypertension 38 (76%) is most common risk factor associated with retinal vein occlusion, all this correlate with the Beaver Dam eye study⁴ suggest that after controlling for age, the incidence of retinal branch vein occlusion was associated with hypertension, serum lipids, body mass index, white blood cell count, alcohol consumption, aspirin use, glaucoma, intraocular pressure, ocular hypertension. The Hisayama study:² prevalence and systemic risk factors for retinal vein occlusion in a general Japanese population suggest that after adjustment for age and sex, hypertension, and hematocrit level were significantly associated with RVO. It suggests that both high-normal blood pressure and hypertension were significantly associated with RVO. It also suggests that compared with normotensive subjects without high hematocrit, the likelihood of RVO was markedly high in subjects having both high blood pressure and high hematocrit. The Hisayama study:³ nine-year incidence and risk factors for retinal vein occlusion in a general Japanese population: showed that after adjusting for age and sex, higher diastolic blood pressure was significantly associated with RVO. In multivariate analysis, higher diastolic blood pressure remained independently significant risk factors for RVO.

In relation to vision loss in RVO, vision loss more significantly affected in CRVO than BRVO, ischemic RVO more than nonischemic RVO, which correlate with results of the Beaver Dam eye study,⁴ Hayreh SS: retinal vein occlusion.¹

In complication, macular edema is most common in 43 (86%) patients, while neovascular glaucoma was found in 10 (20%) patients, which mainly in ischemic CRVO, which correlate with the Beaver Dam eye study⁴ & Hayreh SS: retinal vein occlusion study.¹

Limitations

- 1) We classified RVO based on clinical basis and Fundus photograph.
- 2) Sample size of our RVO cases are relatively small, it might be misleading to compare the prevalence in this study with that in other population studies.

- 3) This is of short duration study, so it should be carried for longer duration for better assessment.

CONCLUSION

The conclusions of our study of 50 eyes of 50 patients with RVO performed at a tertiary eye care centre are as following:

- 1) RVO is seen more commonly in males as compared to females.
- 2) Associated significant risk factors are hypertension, Diabetes mellitus, Hyperlipidemia, Others also, but less significant are alcohol consumption, smoking, tobacco chewing, high hematocrit (hemocysteine).
- 3) Vision loss is more common in CRVO than BRVO, more in ischemic RVO type than Nonischemic RVO type.
- 4) Complication is more common in ischemic CRVO mainly are macular oedema and 100 days glaucoma.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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