A Retrospective Study Of Pre And Post Treatment OCT(Optical Coherence Tomography)In Patients Of BRVO (Branch Retinal Vein Occlusion)With Macular Edematreated With Intravitreal Injection Bevacizumab(1.25mg/0.05ml) Attending Ophthalmology Department Of Tertiary Care Centre

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Abstract: Background: Retinal vein occlusion (RVO) is the second most common sight threatening retinal vascular disorder after diabetic retinopathy. Retinal vein occlusion is a common form of retinal vascular disease, especially in middle-aged and older individuals. Occlusion results due to thrombotic effect on the retinal vein . BRVO is classified according to the anatomical location as major or macular. Major BRVO refers to occlusion of a retinal vein that drains one of the quadrants. Macular BRVO refers to occlusion of a venule within the macula. BRVO is further classified into perfused (non-ischemic) or non-perfused (ischemic). Ischemic BRVO is defined as > 5 disc diameters of nonperfusion on fluorescein angiography (FA). Objectives: To study pre and post treatment (Intravitreal Bevacizumab 1.25mg/0.05ml)OCT in patients with macular edema secondary to BRVO. Material And Methods: 30 Eyes of 30 patients of BRVO with macular edema were studied retrospectively who attended eye opd during Sept-2012 to Aug-2014 according inclusion and exclusion criteria After routine ophthalmic examination with slit lamp biomicroscopy and dilated fundus examination with indirect ophthalmoscope and preop OCT done for CFT(central foveal thickness)patient underwent intravitreal injection anti VEGF. Post treatment OCT of these patients were reviewed after 1 week and 1 month retrospectively. Result: Significant improvements in CFT were observed in these patients after treatment. Results were analyzed based on the duration Of the treatment given, after 1 week and after 1 month.Conclusion: Early diagnosis & treatment of the pathology contributes to the better visual outcome. [Prajapati V Natl J Integr Res Med, 2021; 12(4):29-33]

Key Words: Anti VEGF, BRVO, CFT, OCT

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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 fundus finding of retinal vein dilatation in association with retinal haemorrhages 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. However, some late complications, such as persistent macular edema and neovascularisation of the iris and retina, respond well to retinal photocoagulation, intravitreal injections of steroids and anti-VEGF.

Spectral Domain OCT is very useful in demonstrating macular edema secondary to BRVO. Treatment includes: Grid pattern laser treatment (photocoagulation), intra vitreal steroids(Triamcinolone, Dexamethasone) other Anti VEGF(Ranibizumab, bevacizumab), other medical treatment (Acetazolamide, Anticoagulant) Surgical treatment (chorioretinal venous anastomosis , sheathotomy).

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.

Material & Methods: A retrospective study has been conducted in a tertiary eye care centre, In this study 30 eyes of 30 patientsof BRVO with macular edema attending our hospital from Sept 2012-August 2014 were included as per the inclusion and exclusion criteria mentioned below. A detailed history and clinical examination was

performed with necessary investigations as and when required.

Inclusion Criteria: Age ≥ 18 years of any gender. Ability and willingness to return for all scheduled visits and assessments. Fovealcenter-involved macular edema secondary to BRVO. Media clarity, pupillary dilation, and participant cooperation sufficient to obtain adequate fundus photographs. Patient co-operation during OCT Examinations.

Exclusion Criteria: Poor fixation during OCT examination. Any media opacities that hinder visual function assessment. Prior episode of retinal vein occlusion (RVO). History of any anti-VEGF treatment in the study eye within 3 months prior to study. History of laser photocoagulation for macular edema within 4 months prior to study.

History: Detailed clinical history of the patients was taken according to the proforma as mentioned below. Special attention was given to the risk factors of retinal vein occlusion, details of HTN, DM, Hyperlipidemia, Obesity, Altered Haematocrit level, Smoking, tobacco chewing, Alcohol consumption, Use any Systemic drugs for prolong periods-like Steroids, Collagen vascular disorders.

Clinical Examination: Following points were included in the ophthalmological examination

1. Visual acuity using snellen's chart
2. Anterior segment examination
3. Posterior segment examination using direct ophthalmoscope, Indirect Ophthalmoscope and Slit lamp biomicroscopy using a +78D lens, Fundus photograph with this clinical examination, a clinical diagnosis was made and then the patients were advised systemic workup for retinal vein occlusion along with posterior segment OCT were done.

After that each patient was given intravitreal injection Avastin (Bevacizumab) under strict aseptic precautions. Patients were followed up on next day, at the end of 1 week and at the end of 1 month. OCT of each of the patients were done at the end of 1 week and at the end of 1 month. Patients were given regular follow up according to their clinical condition and were managed accordingly.

Results: On the basis of data collected following observations and results were obtained.

Table 1: Age Wise Distribution

Age	Total	Percentage
25-35	2	6.66
36-45	7	23.33
46-55	12	40
56-65	8	26.66
66-75	1	3.33
Total	30	100

In age wise distribution, 2(6.66%) patient in 25-35years, 7 (23.33%) patients in 35-45years, 12 (40 %)patients in 46-55years, 8(26.66%) patients in 56-65years, while 1(3.33%)patients are in 66-75 years. So, most common group affected in our study is 46-55 years.

Graph 1: Age Wise Distribution

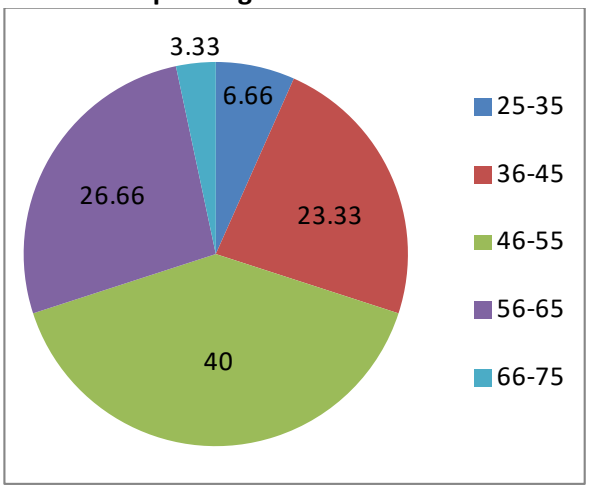
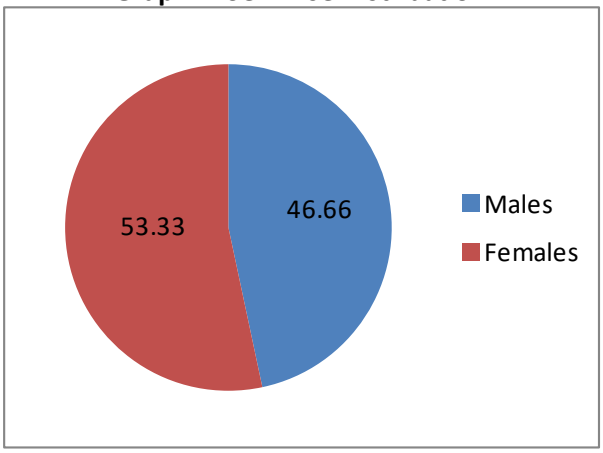


Table 2: Sex Wise Distribution (N =30)

Sex	Total	%
Male	14	46.66
Female	16	53.33
Total	30	100

Graph 2: Sex Wise Distribution

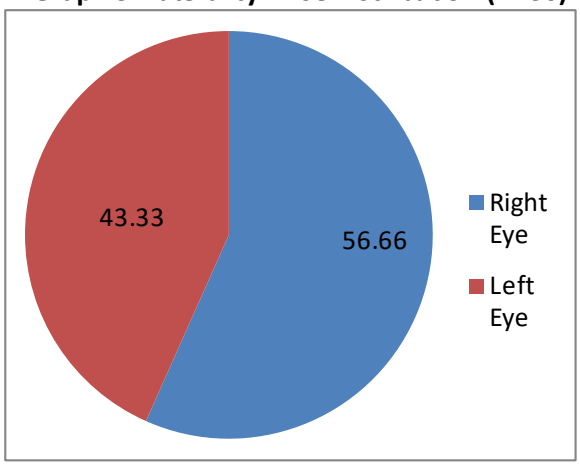


In sex wise distribution, incidence is more common in female 16,(53.33%) than male 14(46.66%), but not significant.

Table 3: Laterality Wise Distribution (N=30)

	Right Eye	Left Eye
N= 30	17	13
	56.66%	43.33%

Graph 3: Laterality Wise Distribution (N=30)

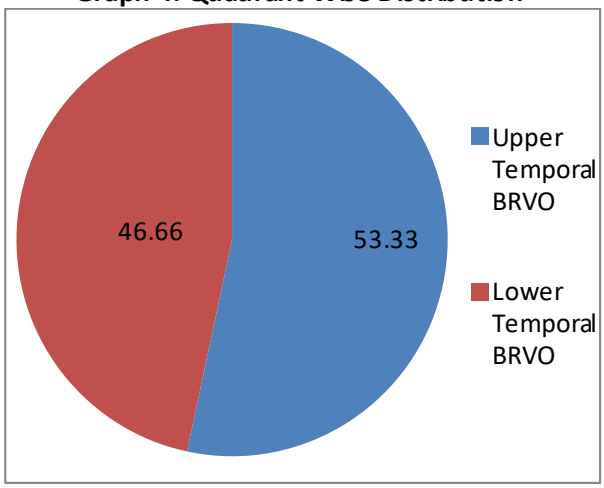


Laterality wise, right eye -17,(56.66%) is more common than left eye - 13(43.33%)in our study.

Table 4: Quadrant Wise Distribution

N=30	Upper Temporal BRVO	Lower Temporal BRVO
	16	14
	53.33%	46.66%

Graph 4: Quadrant Wise Distribution



Upper temporal quadrant BRVO is seen in 16 patients.

Lower temporal quadrant BRVO in 14 patients.

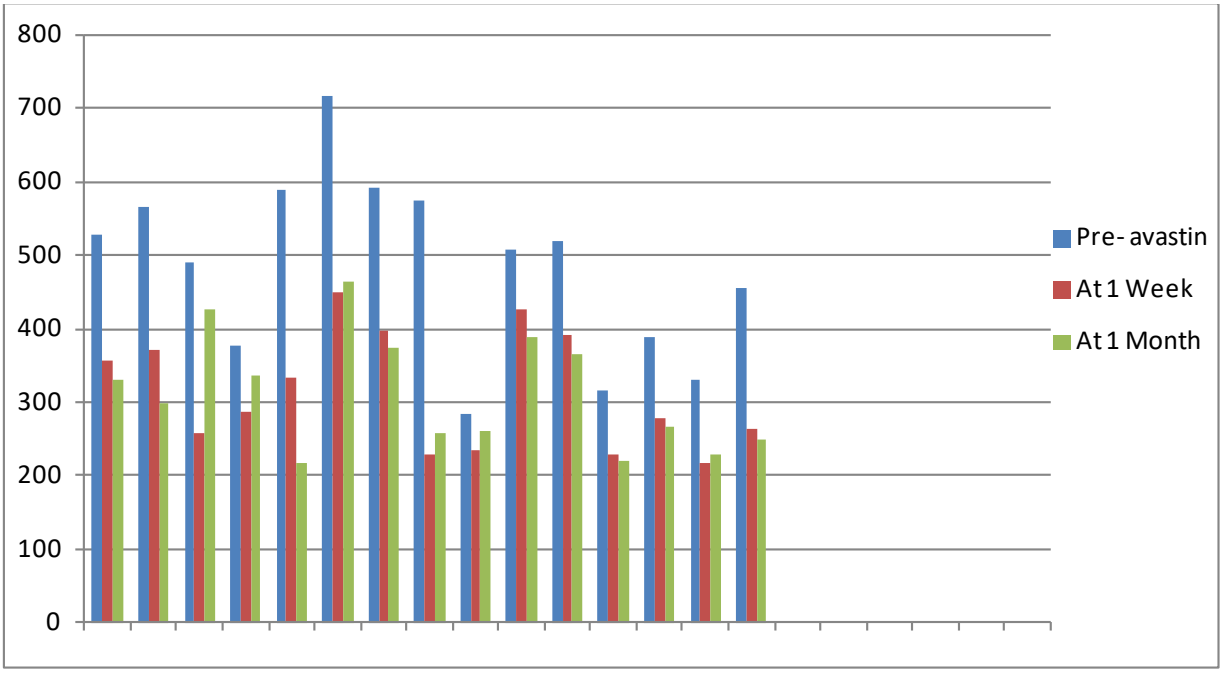
Table 5: Pre And Post Injection Avastin OCT CFT

No.	Pre-avastin	At 1 week	At 1 Month
1	527	356	329
2	566	372	298
3	489	259	426
4	377	287	336
5	590	334	218
6	717	448	464
7	591	397	374
8	574	229	259
9	284	235	260
10	506	425	389
11	520	390	365
12	317	230	220
13	389	278	267
14	330	216	229
15	456	265	248
16	484	340	249
17	520	390	426
18	397	240	220
19	330	216	225
20	494	277	293
21	429	260	231
22	389	228	240
23	542	289	253
24	402	276	254
25	411	230	215
26	501	345	320
27	398	243	201
28	421	229	242
29	487	298	310
30	430	269	220

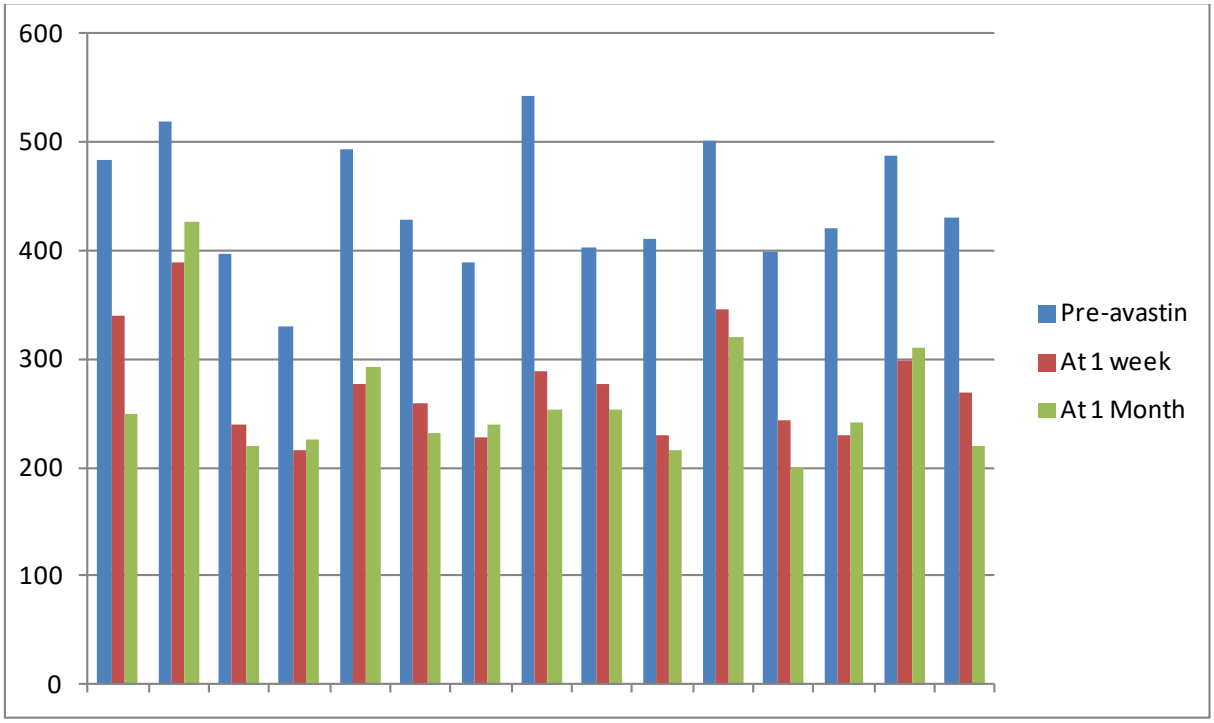
There is significant decrease in the central foveal thickness after inj. Avastin at 1 week and at 1 month of treatment compare to pre – treatment oct in all 30 patients.

Discussion: This study has been conducted at a tertiary care centre, between the period of. In this study 30 eyes of 30 patients were included as per the inclusion and exclusion criteria mentioned earlier.The present study analyzed different techniques for interpretation of retinal injury in patients with retinal vein occlusion. Whereas OCT measures thickening and morphologic changes of the retina. Previous studies reported that intra vitreal bevacizumab resulted in better and faster visual recovery compared to grid laser photocoagulation. The study is designed to determine pre- and post-vastin effects on macular edema on spectral domain OCT.

Graph 5 (A): Pre Injection Avastin OCT CFT



Graph 5 (B): Pre Injection Avastin OCT CFT



On OCT Findings: The central foveal thickness was significantly increased compared to normal parameters in all affected eyes with BRVO before the treatment .

At 1 Week: There is significant decrease in macular edema after 1 week of injection. Avastin treatment in all affected eyes with BRVO.

After 1 Month Of Treatment: 11 out of 30 patients have shown mild increase in central foveal thickness(CFT)compare to the CFT at 1 week after post avastin injection so that patient may require further injection of intra vitreal anti - VEGF..

In our current study no intraocular and systemic adverse effects reported during follow up. Intra vitreal injections appeared to be well tolerated and patients did not experience immediate procedure-related complications or any obvious systemic adverse events following IV injections.

The findings of this study showed the efficacy of an early intra vitreal injection of bevacizumab (1.25mg/0.05ml)in the treatment of ME secondary to BRVO more than a late intravitreal injection of bevacizumab.

Conclusion: There Is Significant Improvement In Central Foveal Thickness After 1 Week Of Treatment Compare To Pre- Treatment findings. There is still improvement in central foveal thickness after 1 month of treatment, though some patients have shown increase in central foveal thickness. As the macular edema decreases, there is significant improvement in vision after the treatment.

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