Original Research Paper

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ASSESSING THE VISUAL OUTCOME AND CLINICAL RESPONSE WITH CHANGES IN REFRACTIVE STATUS, IN RETINAL AND CHOROIDAL VASCULAR DISEASE FOLLOWING INTRAVITREAL INJECTION RANIBIZUMAB THERAPY AT GOVERNMENT COLLEGE & SIR TAKHTASINHJI HOSPITAL, BHAVNAGAR (TERTIARY CARE CENTRE)

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ABSTRACT **Background:** Retinal and choroidal vascular diseases are major causes of visual impairment. Intra-vitreal anti-VEGF agents such as Ranibizumab have shown significant benefits in improving anatomical and functional outcomes. **Aim:** To evaluate the visual outcome and clinical response with changes in refractive status of the eye in retinal and choroidal vascular diseases after intravitreal Ranibizumab treatment. **Methods:** This was a prospective observational study including 45 patients aged above 45 years, conducted at Sir T. Hospital, Bhavnagar, over 6 months. Baseline and follow-up evaluations at 1 and 3 months included best corrected visual acuity (BCVA), intraocular pressure (IOP), central macular thickness (CMT) using OCT. **Results:** Of 45 patients, 26 (53%) were male and 19 (39%) female, with a mean age of 62.4 years. Baseline CMT was 408.7 µm, which reduced to 256.3 µm at 3 months. The etiological distribution was: diabetic macular edema (n=15), CNVM (n=13), CRVO+ME (n=5), BRVO+ME (n=13), and ARMD (n=0). At baseline, the majority of patients had poor visual acuity (≤6/60), whereas at 3 months, a significant proportion achieved better functional vision. **Conclusion:** Intravitreal Ranibizumab significantly improves visual outcomes and reduces macular thickness in retinal and choroidal vascular diseases. Early intervention is associated with better prognosis.

KEYWORDS :

INTRODUCTION

Retinal and choroidal vascular diseases such as diabetic macular edema (DME), central retinal vein occlusion (CRVO), branch retinal vein occlusion (BRVO), and choroidal neovascular membrane (CNVM) are leading causes of visual impairment worldwide. These conditions share a common pathophysiology involving increased vascular permeability and neovascularization mediated by vascular endothelial growth factor (VEGF).

The advent of anti-VEGF therapy has transformed the management of these diseases by providing anatomical and functional improvement. Ranibizumab, a monoclonal antibody fragment against VEGF-A, has been shown in major clinical trials (MARINA, ANCHOR, RISE, RIDE, CRUISE) to improve outcomes in neovascular age-related macular degeneration (AMD), diabetic macular edema, and retinal vein occlusions.

This study was undertaken to evaluate the real-world outcomes of intravitreal Ranibizumab in a tertiary care hospital.

METHODS

Study Design: Prospective observational study.
Study Site: Department of Ophthalmology, Government Medical College & Sir T. Hospital, Bhavnagar.
Duration: 6 months.
Population: Patients aged >45 years diagnosed with retinal or choroidal vascular diseases.

All patients underwent baseline evaluation including best corrected visual acuity (BCVA), slit-lamp bio-microscopy, dilated fundus examination, intraocular pressure (IOP), central macular thickness (CMT) using OCT (Topcon 3D-OCT 2000). Patients received intravitreal Ranibizumab (0.5 mg/0.05 ml) injections and were followed up at 1 and 3 months.

RESULTS

Table 1. Patient Demographics And Etiology

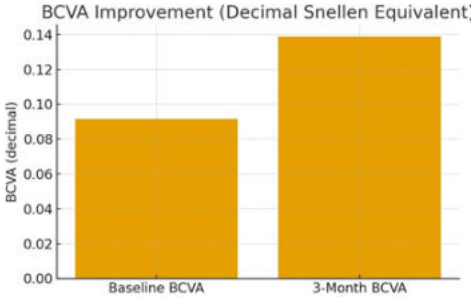
Variable	N	%
Male	26	53.1
Female	19	38.8
DME	15	30.6
CNVM	13	26.5
CRVO+ME	5	10.2
BRVO+ME	13	26.5
ARMD	0	0

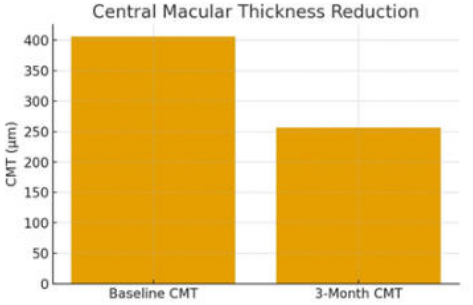
Table 2. Functional And Anatomical Outcomes

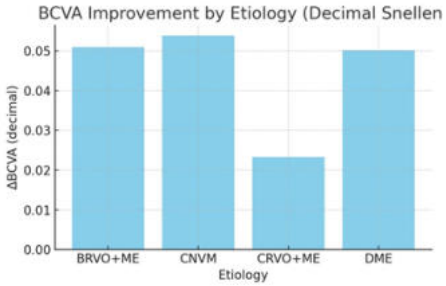
Parameter	Baseline	3 months	Change
BCVA (decimal)	0.091 (~6/66)	0.139 (~6/43)	+52%, p<0.001
CMT (µm)	405.5	256.3	-149.2 (–36.7%), p<0.001

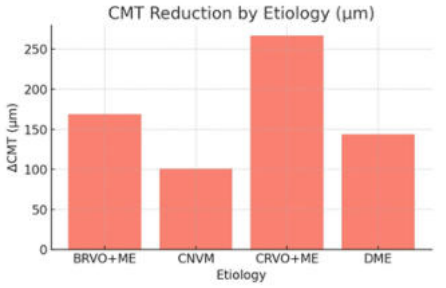
Table 3. Subgroup Outcomes By Etiology

Etiology	N	Baseline BCVA	3-Month BCVA	ΔBCVA	Baseline CMT	3-Month CMT
DME	15	0.103	0.154	+0.050	405.4	261.6
CNVM	13	0.056	0.110	+0.054	330.8	229.6
BRVO+ ME	12	0.128	0.179	+0.051	444.4	275.4
CRVO+ ME	5	0.060	0.083	+0.023	535.8	269.0









DISCUSSION

This prospective study demonstrated that intravitrealRanibizumab significantly improves both functional and anatomical outcomes in retinal and choroidal vascular diseases. The mean reduction of ~152 µm in central macular thickness at 3 months correlates with improvement in BCVA.

These findings are consistent with international trials such as MARINA [1], ANCHOR [2], RISE and RIDE [3], and CRUISE [4], which confirmed Ranibizumab's efficacy in CNVM, AMD, DME, and RVO.

In the Indian context, the burden of diabetic retinopathy and retinal vascular occlusions is rising. However, limited access and high cost remain challenges. Our study highlights real-world outcomes in a tertiary care setting, supporting the role of early and timely Ranibizumab therapy.

CONCLUSION

Intravitreal Ranibizumab provides significant anatomical and functional improvement in retinal and choroidal vascular diseases. Early intervention leads to better outcomes, reinforcing the importance of timely diagnosis and treatment.

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