



Role of intravitreal avastin in reducing macular oedema in diabetic retinopathy and retinal vein occlusions- A COMPARATIVE STUDY

KEYWORDS

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INTRODUCTION

Diabetic Retinopathy represents a significant burden of disease with the increasing incidence and prevalence of diabetes worldwide. Diabetic macular oedema (DMO or DME) is the leading cause of visual impairment in patients of diabetic retinopathy.

The development of DME occurs as a result of vascular endothelial damage with breakdown of the blood-retinal barrier.

Hypoxia caused by microvascular disease stimulates the release of various cytokines.

Vascular endothelial growth factor-A (VEGF-A) is a major contributor to this vascular permeability and angiogenesis.

Anti-VEGF, Avastin (Bevacizumab) blocks vascular endothelial growth factor (VEGF) induced hyper permeability of blood vessels.

Retinal vein occlusions (RVOs) disease remains the second most common sight-threatening vascular disorder.

The main cause of visual loss in RVO is macular oedema.

The inhibition of VEGF by Bevacizumab injection has become an alternative treatment for the macular oedema secondary to RVOs.

AIM OF THE STUDY

To evaluate the comparative efficacy of intravitreal Avastin.

- In the management of Macular Oedema in Diabetic retinopathy and Retinal vein occlusions.
 - with centre involving macular oedema of CMT > 350microns as diagnosed by OCT.
- The Institutional Ethics Committee Approval has been taken.

INCLUSION CRITERIA

- Patients attending the retina clinic of GREH, Visakhapatnam, with type 2 diabetes mellitus and retinal vein occlusions
- with centre involving macular oedema of CMT > 350microns as diagnosed by OCT.
- Those patients who are selected for IVA as the primary mode of treatment.

EXCLUSION CRITERIA

- Age > 80 yrs.
- Media opacities.
- Intraocular surgery within 1 month
- Vitreomacular traction.
- Epiretinal membrane.
- Macular ischemia.

PATIENTS AND METHODS

15 pts diagnosed as Diabetic Macular Oedema and 15 pts diagnosed as Retinal Vein Occlusions at Government Regional Eye Hospital,

Andhra Medical College, Visakhapatnam were included in this prospective interventional study done from July 2015 to December 2015.

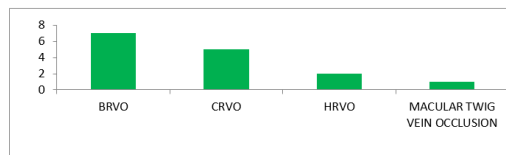
An informed consent is taken from all the patients.

- OCT was done before giving the IVA injection.
- 1.25 mg in 0.05 ml of Avastin intravitreally was given under strict aseptic precautions.
- Post operatively, Nepafenac eye drops 2 times per day for 1 month was given to all patients.
- OCT was done and the macular oedema was reviewed 1 month after the injection.
- The results were statistically analyzed to see whether there is a significant change in CMT.

RESULTS

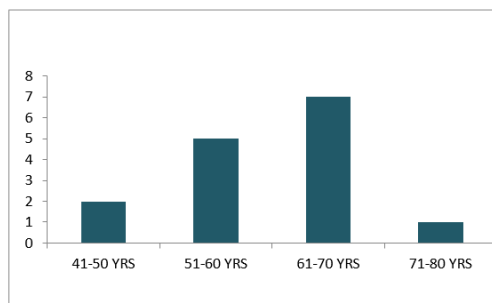
In 15 patients of RVO :

- 7 eyes(46.66%) had BRVO
- 5 eyes (33.33%) had CRVO
- 2 eyes(13.33%) had HRVO
- 1 eye (6.66%) had Macular twig vein occlusion



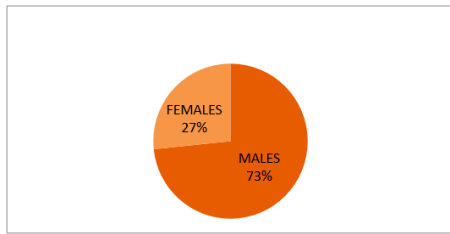
Age Distribution in RVO

Age group	Number	%
41 to 50 years	2	13.33%
51 to 60 years	5	33.33%
61 to 70 years	7	46.66%
71 to 80 years	1	6.66%



Gender Distribution in RVO

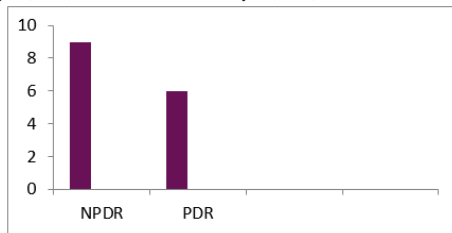
Males were 11 and females were 4.



Diabetic Macular Oedema

15 patients with Diabetic Retinopathy of which

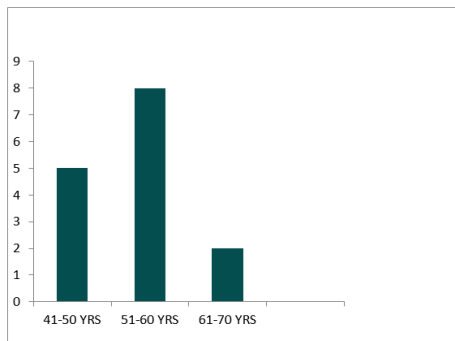
- 9 eyes(60%) were NPDR and 6 eyes(40%) were PDR



Age Distribution of DME

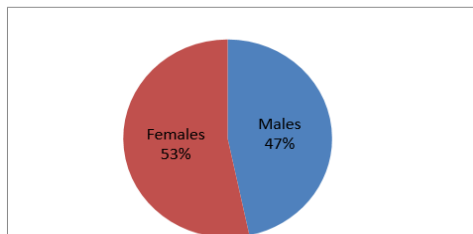
The age group ranged from 45 to 64 years.

Age group	Number	%
41 to 50 years	5	33.33%
51 to 60 years	8	53.33%
61 to 70 years	2	13.33%



Gender Distribution in DME

Males were 7 and females were 8.



REDUCTION IN CMT

	No. Of cases with CMT reduction	No. Of cases with CMT increase
RVO	15 (100%)	0
DME	14 (93.33%)	1 (6.66%)

THE MEAN REDUCTION IN CMT

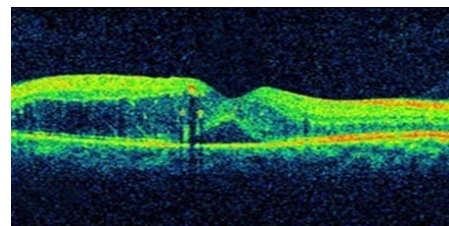
Retinal vein occlusions	259.3 µm
DME	175.2 µm

MEAN RANGE OF REDUCTION IN CMT (IN µm)

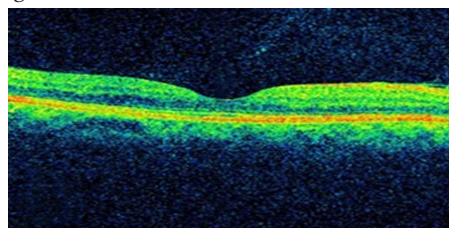
	Pre - IVA	Post - IVA
Retinal Vein Occlusions	736 ± 368	365 ± 179
Diabetic Macular Oedema	548.5 ± 174.5	422.5 ± 175.5

IMPROVEMENT IN VISION

From	To	RVO	DME
CF 1 Mt	6/60	7	6
	6/60	6	4
	6/36	2	4
	Total	15	14



OCT images in DME before and after IVA



DISCUSSION

Diabetic Macular Oedema is a chronic disease where the vascular changes are well established and a single Anti-VEGF injection will not cause much reduction in the CMT.

Systemic glycemc control plays an important role in control of diabetic macular oedema.

Also other associated factors like hypertension, anaemia, renal function, lipid profile etc. influence the control of DME.

Retinal Vein occlusions: the vascular changes are acute and hence even with single Anti-VEGF injection, there is significant reduction in CMT.

Comparison with other studies:

	Our Study	Pacores 2009	Shaaban A. Mahey
CMT Reduction Range in DMO (in µm)	548.5 ± 174.5 to 422.5 ± 175.5	466.5 ± 145.2 to 332 ± 129.6	
CMT Reduction Range In RVO (in µm)	736 ± 368 to 365 ± 179		455 ± 126 to 356 ± 118

CONCLUSIONS

A single dose of intravitreal avastin can reduce macular oedema in both Diabetic retinopathy and retinal vascular occlusions.

But it is more effective (50% reduction in CMT) in Retinal Vein Occlusions when compared to Diabetic Macular Oedema which is statistically significant.

The authors have no financial interest in presenting this study.

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