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ROLE OF SINGLE DOSE OF INTRAVITREAL RANIBIZUMAB IN CHRONIC CENTRAL SEROUS CHORIO RETINOPATHY: A RETROSPECTIVE STUDY.

Ophthalmology

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ABSTRACT

PURPOSE: To see the effect of single dose of intravitreal Ranibizumab under topical anaesthesia in chronic central serous chorio retinopathy (CSCR).

METHODOLOGY: 10 eyes of10 patients were included in our study. After proper history taking and best corrected visual acuity (BCVA) and intraocular pressure (IOP) measurement, detailed fundal evaluation under mydriasis and central macular thickness measurement by spectral domain optical coherence tomography(SD-OCT), we had injected intravitreal Ranibizumab in each patient under topical anaesthesia with prior informed consent. On day 15, day 30 and day 90 after the injection again best corrected visual acuity (BCVA), detailed fundal evaluation and ocular coherence tomography were repeated. Then all the statistical data were analysed by using paired T test (with the help of SPSS software) to get the result.

RESULTS: Out of 10 patients 8 had shown improvement in terms of resolution of subretinal fluid.

CONCLUSION: Intravitreal Ranibizumab can be an effective tool to tackle chronic nonresponding central serous chorio retinopathy.

KEYWORDS

CSCR= Central serous chorio retinopathy, RPE= Retinal pigment epithelium, PDT= Photodynamic therapy, VEGF= Vascular endothelial growth factor, BCVA= Best corrected visual acuity, IOP= Intraocular pressure, SD-OCT= Spectral domain optical coherence tomography, CMT= Central macular thickness.

INTRODUCTION:

The underlying causative factor for central serous chorio retinopathy (CSCR) is retinal pigment epithelium(RPE) pump dysfunction thus resulting in serous retinal detachment(1). Middle aged males are predominantly affected (age range= 30-50 years).(2). Definitive etiologies are not known but possible associations are type- A personality, anxiety, stress, smoking, hypertension,prolonged steroid therapy, pregnancy etc(3). Venous congestion and ischaemia and or inflammation of inner choroidal layer cause choroidal hyperpermeability leading to serous detachment of neural retina(3-5). Usually conservative approach is adopted for this disorder but long standing non resolved cases may culminate in permanent visual impairment owing to RPE damage(6). Most cases resolve spontaneously within 3 months of disease onset(7-9) but if not active intervention is needed and usual approach will be to opt for either retinal photocoagulation or photodynamic therapy(PDT). These therapies may result in RPE changes, choroidal neovascularisation, choroidal hypoperfusion etc(10-12). Anti-VEGF agents are one modality to reduce choroidal leakage because VEGF is the main culprit for increased vascular permeability(13). Ranibizumab has affinity to bind with all isoforms of VEGF including VEGF-165 which is predominant fraction.The human antibody fragment is produced by an E.coli expression system. It has got half life of 2-4 days resulting in very rapid systemic clearance and high systemic safety. Transient subconjunctival haemorrhage and vitreous floaters and transient intraocular pressure rise are few commonly seen side effects of it. Due to its smaller molecular size and higher binding affinity to VEGF, Ranibizumab is blessed with more retinal penetration capability compared to Bevacizumab and therefore can be used successfully in chronic CSCR.

METHODOLOGY:

This is hospital based retrospective, nonrandomised interventional study which was conducted in Malda Medical College in West Bengal in India from august 2017 to july 2018 with the span of 1 year. We have included 10 eyes of 10 patients.

Inclusion criteria:

1. Chronic nonresponding CSCR for more than 6 months.
2. Patients were not on treatment for last 3 months.

Exclusion criteria:

1. Old age more than 60 years.
2. Pregnant women.
3. Known hypersensitivity to Ranibizumab.
4. Bilateral CSCR.

After proper detailed history taking, we have measured best corrected visual acuity(BCVA) with standard snellen chart, intraocular pressure(IOP) by Goldmans applanation tonometer and evaluated fundus of each patient with the help of 78 D and 90 D lens and indirect ophthalmoscope. Then each and every patient was advised to undergo spectral domain optical coherence tomography(SD-OCT) to measure central macular thickness(CMT). There after with prior informed consent and institutional clearance we have injected Ranibizumab(0.5 mg) intravitreally under topical anaesthesia under strict aseptic measures. Then all patients were instructed for follow up at day 15, day 30 and day 90 after the injection. In each visit, BCVA measurement, detailed fundal evaluation under mydriasis and OCT to evaluate macular status were done. The normal CMT was regarded as 250 micron plus minus 20 micron and satisfactory results were regarded when CMT reduced to become within this range. Then all the statistical data were analysed by using paired T test(with the help of SPSS software) particularly in relation to CMT.

RESULTS:

All 10 patients were male they were in the age range of 30-45 years. After 3 months of single dose of intravitreal Ranibizumab under topical anaesthesia , out of 10 patients 8 were having better results as far as reduction in CMT was concerned. They had also shown improvement in BCVA but that was not statistically proven. Still 2 patients remained refractory to above therapy suggesting necessity of other treatment options. The following table was derived after application of paired T test:

Pre Interventional:
In Relation To Cmt(Total Patient 10):

MEAN	380.70
S.D	27.1745
SEM	8.5933
95% OF CI OF MEAN	(361.26)-(400.14)

Post Interventional:
In Relation To Cmt (Total Patient 10):

	After 15 Days	After 1 Month	After 3 Months
Mean	331.80	273.50	305.40

S.D	31.3291	30.4129	31.0598
Sem	9.9071	9.6174	9.8220
95% CI Of Mean	(309.39)-(354.21)	(251.74)-(295.26)	(283.18)-(327.62)
P Value	<0.0001	<0.0001	<0.0001
Calculated T Value	-20.8111	-43.1454	-32.0724

From the above table it was clear that single dose of intravitreal Ranibizumab under topical anaesthesia is a very good treatment modality in cases of chronis nonresponsive central serous chorio retinopathy as revealed by the P values all of which were <0.0001 15 days, 1 month and 3 months after injection respectively. This interpretation dictates that all P values are clinically significant.

OCT PICTURES OF 1 PATIENT:

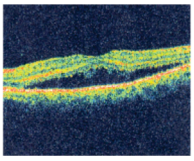

Fig 1 (before Intervention)

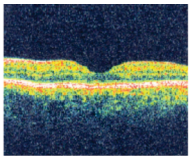

Fig 2(after 1 Month)

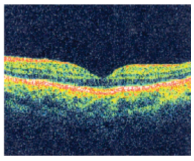

Fig 3(after 3 Months)

DISCUSSION AND CONCLUSION:

Chronic CSCR is very common problem seen in hospital set up and different treatment modalities are tried to deal with this apart from the conservative approach. Among them laser therapy and PDT are two options but they may cause persistent hypoperfusion of choriocapillaries. Hence anti-VEGF agents are being tried as alternative weapon because they may help in resolution of subretinal fluid in acute as well as chronic CSCR by nullifying the VEGF thereby reducing the choroidal hyperpermeability. But still these are not confirmatory approach though we have got promising results in our current study. For that reason long term prospective trials with large number of patients are necessary to stamp the definitive role of anti-VEGF therapies in chronic CSCR.

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