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ROLE OF INTRAVITREAL RANIBIZUMAB IN UVEITIC MACULAR EDEMA : A RETROSPECTIVE STUDY

Ophthalmology

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ABSTRACT

PURPOSE- To study the effects of 3 doses of intravitreal Ranibizumab under topical anaesthesia at 1 month interval for 3 months in cases of uveitic macular edema(UME) irrespective of etiology.

METHODOLOGY- 11 patients of UME of different etiology were taken in our current study. After proper history taking and detailed clinical examinations including ophthalmological examinations, these patients were given intravitreal Ranibizumab (0.5 mg)under topical anaesthesia for three consecutive months and best corrected visual acuity(BCVA) and central macular thickness(CMT) were measured at 1 month interval. We have taken the help of Snellen's chart and Ocular Coherence Tomography(OCT) to measure BCVA and CMT respectively. We have used hospital based experimental (uncontrolled clinical trial) research to find out the different statistical values. Paired T test was applied with the help of SPSS software to get the results.

CONCLUSION- UME responds to intravitreal Ranibizumab in good number of cases but long term study with greater number of patients is desired to draw firm conclusion.

KEYWORDS

UME- Uveitic Macular Edema, CMT- Central Macular Thickness, BCVA- Best corrected visual acuity, ,OCT-Ocular Coherence Tomography, VEGF- Vascular endothelial growth factor.

INTRODUCTION:

Posterior uveitis as well as panuveitis is a vision threatening disorder where commonest cause of visual impairment is macular edema(UME) (1,2) the pathogenesis of which is mediated by Interleukin 2,6,10, Interferron gamma, Tumor necrosis factor alpha (TNF alpha), Vascular endothelial growth factor (VEGF) (3-7). VEGF that increases vascular permeability gets significantly upregulated in UME (7-10). The treatment protocol of UME involves topical nonsteroidal anti inflammatory drugs, corticosteroids in different routes such as oral, periocular, intraocular injections, oral carbonic anhydrase inhibitors, systemic somatostatin analogues, interferon alpha, mycophenolate mofetil as well as VEGF inhibitors (11-20). But UME may be refractory to best possible treatments. Ranibizumab is a recombinant humanized full- length monoclonal antibody which antagonizes VEGF. It is seen from different clinical studies that patients with noninfectious posterior uveitis who received either intravitreal Bevacizumab or Ranibizumab showed some improvement in visual acuity and resolution of macular edema too some extenct. Our current study depicts the effect of intravitreal Ranibizumab in UME irrespective of etiologies.

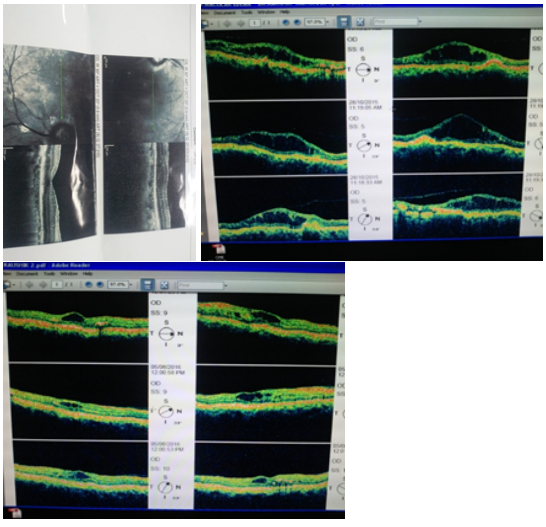
METHODOLOGY:

We conducted this hospital based experimental uncontrolled clinical trial from june, 2016 to may, 2018 over the span of 2 years in Malda Medical College in West Bengal. We have taken 11 patients including 8 males and 3 females in the age range of 25- 50 years.

Inclusion criteria: within last 3 months, UME which is refractory to topical, periocular , intraocular and systemic steroid as well as immunosuppressive therapy.

Exclusion criteria: Associated 1. Vitreo macular traction(VMT), 2.Epiretinal membrane(ERM), 3.Dense vitreous hemmorrage, 4.Dense cataract, 5.History of any intraocular surgeries including cataract surgeries, 6. Pregnant women, 7. Active HIV infection.

At first detailed history including age, sex, onset of dimness of vision, associated pain if any, associated long standing fever if any, other systemic diseases were taken from the respective patients. Then the thorough ophthalmological examination including best corrected visual acuity(BCVA), applanation tonometry with Goldman applanation tonometer, slit lamp biomicroscopy, gonioscopy and detailed fundal evaluation with the help of indirect ophthalmoscope were done. There after we have advised the patients to undergo routine hemogram, blood sugar test both fasting and postprandial, serology for the HIV, Hepatitis-B, C and for different granulomatous disorders such as tuberculosis, sarcoidosis, Wegeners granulomatosis etc. Next the patients were instructed to undergo Optical Coherence Tomography(OCT) [Spectral Domain] to measure central 1 mm macular thickness (CMT). Here UME is defined as CMT is more than 250 micron.Then after prior informed consent from the patients and institutional ethical clearance, intravitreal Ranibizumab(0.5 mg) given under topical anarsthesia at 1 monthly interval upto 3 consecutive months and BCVA and CMT were recorded at 1 month, 2 months, 3 months postoperatively. After that we have used paired T test(with the help of SPSS software) to assess mainly the changes in CMT at previous mentioned visits.



RESULT AND DISCUSSION:

Out of 11 patients, 8 were male and 3 were female and all the patients were in the age range of 25 to 35 years. The etiologies of uveitis were not taken into account here. In current study we have adopted hospital based experimental,clinical research(uncontrolled clinical trial) to assess the improvement of BCVA and CMT following 3 consecutive

doses of intravitreal Ranibizumab(0.5 mg) at 1 month interval under topical anaesthesia and its design pattern was concurrent study design with before and after comparison without any control group. Here we applied paired T test to assess mainly the changes in CMT before and after intervention. It was clearly evident from above study that the standard deviation of x values and y values were clinically significant which were 35.722 and 53.488 respectively at the end of 3 months and p values of CMT and BCVA were also clinically significant as proved the values of <0.05, <0.05 and <0.001 at 1month, 2 months, 3 months postoperatively respectively.Following are the tables which we derived from the statistical analysis:

IN RELATION TO CMT (PREOPERATIVE):

Average mean	392.091
Median	381
Mode	361
Range	94
Standard deviation	34.06
Pearsons Coefficient of Skewness	0.977

IN RELATION TO CMT(POSTOPERATIVE):

	AFTER 1 MONTH	AFTER 2 MONTHS	AFTER 3 MONTHS
Mean of X Values	392.091	392.091	392.091
Mean of Y Values	352.091	324.727	291.818
SD of X Values	35.722	35.722	35.722
SD of Y Values	49.33	54.218	53.488

Now we have seen that intravitreal Ranibizumab is also able to reduce the macular edema of inflammatory origin thus causing improvement in BCVA.

CONCLUSION:

UME is a leading cause of ocular morbidity. Although there is no standard treatment of UME, our study has shown that intravitreal Ranibizumab can be a safe and effective tool for the management of UME as indicated by the significant improvement of BCVA and decrease of CMT. However to combat UME, control of active inflammation is desirable because it reduces the number of intravitreal Ranibizumab injection. But to achieve the decisive conclusion, we need to have longer term prospective trials in near future.

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