ORIGINAL RESEARCH PAPER

Ophthalmology

CYSTOID MACULAR EDEMA SECONDARY TO RETINITIS PIGMENTOSA

KEY WORDS:

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AIM AND OBJECTIVE:

- To assess the efficacy of oral acetazolamide in management of CME secondary to retinitis pigmentosa.
- To evaluate anatomical and visual outcome following treatment
- To determine the duration of treatment

INTRODUCTION

Retinitis pigmentosa is a group of inherited eye diseases that affect the light-sensitive part of the eye (retina), with progressive photoreceptors and pigment epithelial cells dysfunction. RP causes cells in the retina to die, causing progressive vision loss. The first sign of RP usually is night blindness. As the condition progresses, affected individuals develop tunnel vision (loss of peripheral vision), and eventually loss of central vision. RP may be caused by mutations in any of at least 50 genes. Inheritance can be autosomal dominant, autosomal recessive, or X-linked [1]

Treatment options to slow the progression of vision loss include light avoidance, use of low-vision aids, and vitamin A supplementation. Researchers are working to develop new treatment options for the future such as gene therapy, stem cell transplantation and prosthetic implants[(2)(3)]

REVIEW OF LITERATURE:

Retinitis pigmentosa (RP) is a hereditary retinal disease leading to blindness, which affects two million people worldwide. Restoring vision in these blind patients was proposed by gene delivery of microbial light-activated ionic channels or pumps "optogenetic proteins" to transform surviving cells into artificial photoreceptors.[10] This therapeutic strategy was validated in blind animal models of RP by recording at the level of the retina and cortex and by behavioural tests.[7] The translational potentials of these optogenetic approaches have been evaluated using in vitro studies on post-mortem human retinal tissues.[8] Here, we review these recent results and discuss the potential clinical applications of the optogenetic therapy for RP patients.[4]

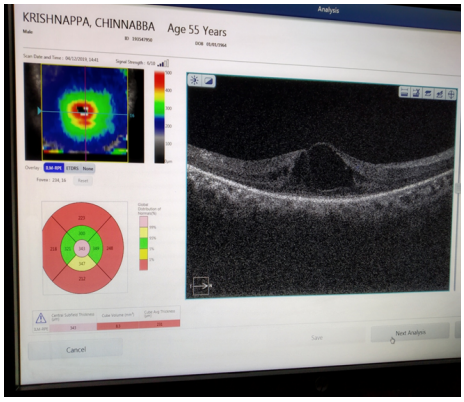
In recent years, stem cell transplantation-based attempts made some progress, especially the transplantation of bone marrow-derived mesenchymal stem cells (BMSCs).[5]

To date, 45 causative genes/loci have been identified in non syndromic RP.[6]

The therapeutic approach is restricted to slowing down the degenerative process by sunlight protection and vitaminotherapy, treating the complications (cataract and macular edema), and helping patients to cope with the social and psychological impact of blindness. However, new therapeutic strategies are emerging from intensive research (gene therapy, neuroprotection, retinal prosthesis).[6]

METHODS:

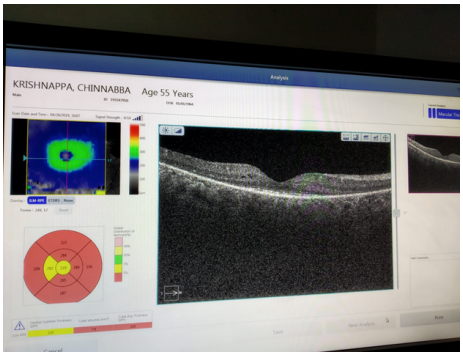
- Prospective non randomised trial included 25 eyes of 25 patients who visited a tertiary care centre were diagnosed CME secondary to RP
- 18 males and 7 females patients aged 25-40 were included
- All patients underwent complete ophthalmic examination and posterior segment evaluation by optical coherence tomography (OCT) of both eyes (BE) with zeiss (primus)
- Patients who were diagnosed with CME were included in the study and treated with oral acetazolamide 250 mg BD –for 2 weeks
- Tapered in two weeks
- Follow up done at 1st ,2nd ,3rd week
- Visual acuity and OCT evaluation done on every follow up.
- Patient with improvement in vision were given tapering doses of oral acetazolamide i.e., 250 mg OD for a week and stopped



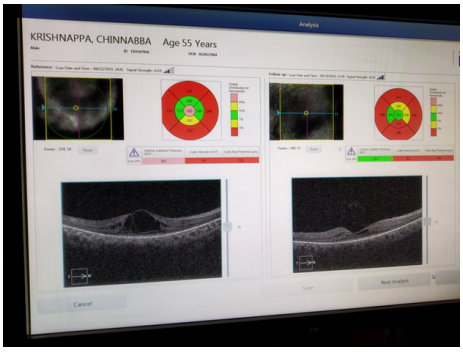
Patient on first visit-showed cystoid spaces at macula, altered foveal contour, with parafoveal loss of photoreceptors suggestive of retinitis pigmentosa with cystoid macular edema. Central Macular thickness -343 micrometers

OCT 5 line raster image during first visit

On subsequent follow up-at 2 nd week- OCT revealed resolution of edema with normal foveal contour. Central macular thickness-232 micrometers



OCT follow up during 3rd week, with decrease in cystoids macular edema with central macular thickness of 219 micrometers



Comparison of OCT images on first and last visit

RESULTS:

- 20 eyes of 25 patients evaluated at 1st, 2nd, 3rd week showed complete resolution of CME where as 5 eyes showed gradual resolution.
- At the end of one month , 20 eyes showed median central macular thickness (240-300 microns) with complete resolution of CME with 1 line improvement in visual acuity (snellens chart).

CONCLUSION:

- In our small series of patients i.e., 25 eyes of 25 patients, 20 eyes showed anatomical improvement in CME with complete resolution after treatment with oral acetazolamide.
- But these patients showed only 1 line improvement in visual acuity.

LIMITATION OF OUR STUDY :

- As the study involves small number of patients and shorter duration of follow up, large number of patients to be included to come to better conclusion.

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