



Research Article

A COMPARATIVE STUDY ON COMBINATION THERAPY OF OCCLUSION AND H.B.STIMULATION V/S OCCLUSION ALONE IN MANAGEMENT OF AMBLYOPIA IN 5 TO 16 YEARS CHILDREN OF KAMRUP(METRO) DISTRICT OF ASSAM, A NORTH-EASTERN STATE OF INDIA

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ABSTRACT

Introduction: Amblyopia is one of the most common causes of visual impairment in children. Conventional treatment of amblyopia by patching of sound eye fails due to poor patient compliance. Hence, Alternative technique of minimal occlusion with H.B.stimulation of amblyopic eye has been studied.

Aims And Objectives: To compare efficacy of combination therapy of occlusion in good eye and H.B.stimulation in amblyopic eye v/s occlusion therapy alone in 51 patients in the age group of 5 to 16 years of Kamrup(Metro) district of Assam.

Materials And Methods: A prospective study of 51 amblyopic children in the age group of 5 to 16 years collected from a cross sectional study, carried out in Government and private schools of Kamrup (Metro) district of Assam, during the academic session 2013-15 from the period September, 2013 to August, 2015 who were treated and followed up in a tertiary care hospital in Guwahati were divided into 2 groups. 1 group received patching of the good eye, H.B.stimulation of the amblyopic eye with synoptophore, and the other group received patching of good eye alone. The Va of B/E recorded each time. All children were regularly examined every 3 months by the same ophthalmologist. The compliance of each patient was reassessed and adjusted. At the end of the schedule, Va of the amblyopic and the good eyes were measured plus the binocularity of B/E was recorded as the main outcome measurement.

Results: Out of 12104 students screened, 845(7.0%) had refractive errors. Prevalence of amblyopia was found to be 98(0.81%). However, only 51 had undergone treatment and could be followed up for the said period (duration of the study was 2yrs). Final BCVA were between 6/6 and 6/12 for 44 cases of 51 cases (90%). Final best binocularity was maintained in 38 of 51 patients (60%), including 20 anisometric patients, 7 pseudophakic patients, 13 strabismic patients and 1 combined group patients.

Conclusion: Combination therapy of minimal occlusion in good eye and H.B.stimulation of the amblyopic eye was better than occlusion of the good eye alone, based on visual acuity and compliance of the patient.

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INTRODUCTION

Amblyopia is one of the most common causes of visual impairment in children. Conventional treatment of amblyopia by patching of sound eye fails due to poor patient compliance. Hence, Alternative technique of minimal occlusion in the good eye with Haidinger's Brushes(H.B.)stimulation of amblyopic eye has been studied.

The entoptic phenomenon of H.B. caused by the action of polarised light falling on the macula, can be used in the treatment of eccentric fixation and abnormal retinal correspondence. The appreciation of the phenomenon is the result of variations in absorption by the retinal pigment which is oriented in front of photoreceptors in the parafoveal region. After this exercise has been practised many times, the correct spatial value of the fovea is gradually re awakened, leading to

restoration of central fixation, improvement in visual acuity and commencement of binocular vision.

The Haidinger's brushes (H.B.) are always placed in front of the amblyopic eye, so that foveal fixation is maintained during the treatment. However, it is possible to commence binocular treatment even before foveal fixation is established, as long as the patient can appreciate H.B.

Very few literatures have been reported regarding efficacy of H.B.stimulation in the treatment of amblyopia.

The AIMS AND OBJECTIVES of our study was to:

To compare efficacy of combination therapy of minimal occlusion in good eye and H.B.stimulation in amblyopic eye v/s occlusion therapy alone.

MATERIALS AND METHODS

Place of study

It is a retrospective study, carried out in 51 amblyopic children in the age group of 5 to 16 years, which are collected by a cross sectional study, carried out in Government and Private schools of Kamrup(Metro) district of Assam, a North Eastern state of India. Out of 12,104 children screened, 98 children were found to be amblyopic. However, only 51 children had undergone treatment successfully and were followed up in a tertiary care hospital of Assam for the duration of study i.e.2 yrs.

Period of study

The period of study extended from September, 2013 to August,2015.

Study sample consisted of

51 amblyopic children attending RIO,OPD.

40- receiving combination therapy of H.B.stimulation and occlusion

11- received only occlusion therapy

Inclusion Criterion

- School going children in the age group of 5-15 years irrespective of gender of Kamrup metro region.
- Uniocular or binocular best corrected visual acuity(BCVA) less than 6/9 in either or both eyes.
- Children with Strabismus, Anisometropia, Paediatric cataract(post operative) etc. With BCVA less than 6/9 in one or both eyes.
- Patient with a history of previous treatment/currently taking amblyopia treatment.
- Patient with prior intraocular or refractive surgery.

Exclusion Criterion

- Age less than 5 years and more than 15 years.
- Any organic ocular pathology

Before starting treatment

- initial visual acuity,
- Cycloplegic and non cycloplegic refraction,
- proper orthoptic examination in strabismic patients was carried out.
- They were divided into 2 groups.
- **1st group** received patching of the good eye and H.B. stimulation of the amblyopic eye with synoptophore Model 2051 and
- **2nd group** received patching of good eye alone.
- The Va of B/E recorded each time. All children were regularly examined every 3 months by the same ophthalmologist.
- The **compliance** of each patient was reassessed and adjusted.
- At the end of the schedule, **Visual acuity** of the amblyopic and the good eyes were measured and was recorded as the main outcome measurement.



Fig showing 2 children receiving occlusion of good eye by an occlusion patch in the first case and an occluder attached to a spectacle in the second case.



Fig showing 2 patients receiving H.B.stimulation with Synoptophore model 2051

RESULTS AND OBSERVATIONS

Out of 47 patients 18 - anisometric 12 - strabismic 10 - combined 7 –sensory deprivation amblyopia.

Out of 47 amblyopics, 28(57.6%) were male children and rest 19(42.4%) were females. Males were more than females in all the different types of amblyopia.

20 children(42.5%) were in the age group of 5-7 yrs, 20(42.5%) in the age group of 8-10 yrs and rest 7 children(15%) were in the age group of 11-15 yrs.

The mean initial log MAR visual acuity of the 47 amblyopia patient is 0.70 ± 0.14 .

Comparison of mean initial and final visual acuity between the two groups at the end of 3 months

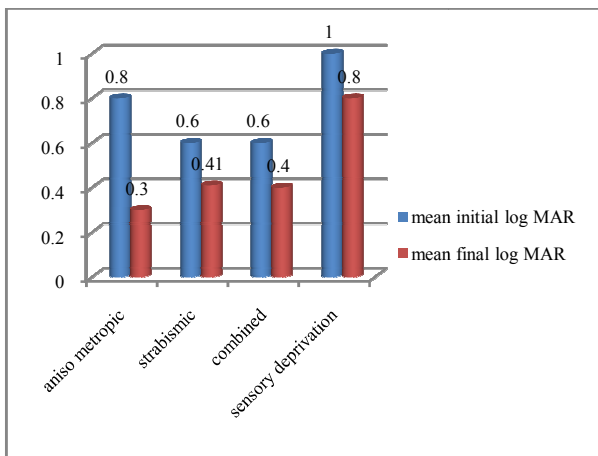


Fig1 showing Group1 with occlusion of the good eye alone.

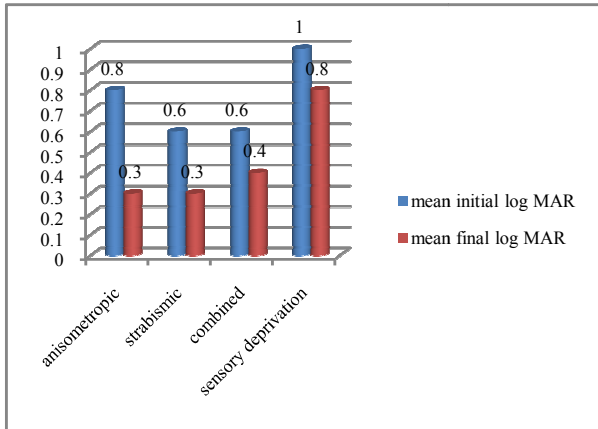


Fig2 showing Group 2 with part time occlusion of the good eye and H.B.stimulation in the amblyopic eye.

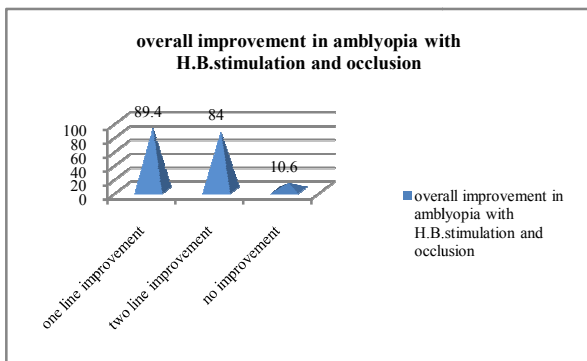


Fig 3

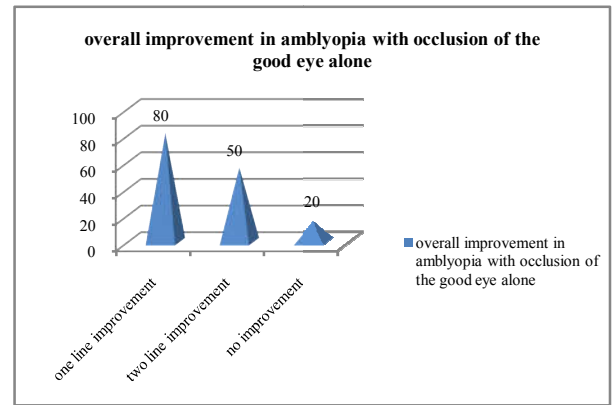


Fig 4

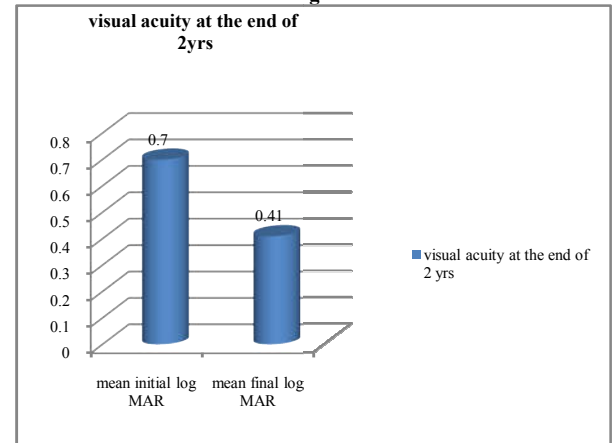


Fig 5 showing visual acuity of Group receiving H.B. and occlusion therapy at the end of 2 yrs

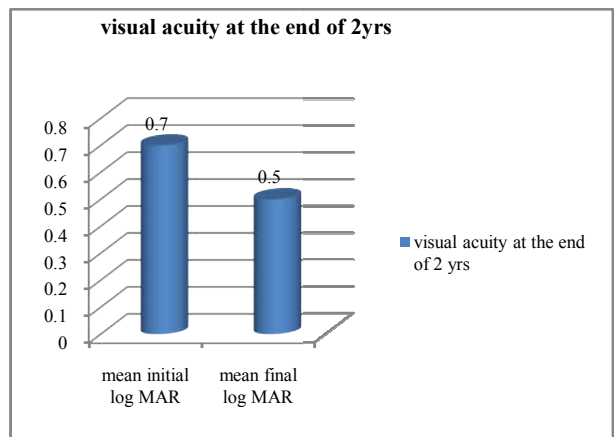


Fig6 showing visual acuity of Group receiving occlusion therapy alone at the end of 2 yrs

DISCUSSION

The results and observations in this study is comparable with observations made by Subharnghasen et al, 2003, Journal of Medical Association of Thailand).89.4% of patients had one Snellen's line improvement within a month of starting H.B. Stimulation and occlusion therapy. However, the rest 10.6% patients with no improvement are the ones with sensory deprivation amblyopia.

Only one patient during the entire study period deteriorated due to discontinuation of the H.B.stimulation.

The compliance of the patient was found to be better in patients receiving combination therapy of H.B.stimulation and occlusion.

Bilateral amblyopia can be treated with H.B. Stimulation.

CONCLUSION

Combination therapy of minimal occlusion in good eye and H.B.stimulation of the amblyopic eye was better than occlusion of the good eye alone, based on visual acuity and compliance of the patient.

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