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Research Article

Management of Refractive Amblyopia in all Age Group by Triple Technique Therapy

Arvind Kumar Morya*[1], Fauzia Rehman Khan[2]
[1]Assistant Professor, Department of Ophthalmology Teerthanker Mahaveer Medical College & Research Centre, Moradabad
[2]Assistant Professor, Department of Anaesthesia, Teerthanker Mahaveer Medical College & Research Centre, Moradabad

***Corresponding author**
Dr. Arvind Kumar Morya
Email: bulbul.morya@gmail.com

Abstract: The objective of the study was to evaluate outcome of Triple Technique Therapy (TTT) for the management of refractive Amblyopia (anisometropia + isometropia) in age group of 5 to > 40 years old. It was a prospective study. It included 253 patients visiting the regular OPD out of which 27 left the study group so final study group was 216 over a period of 3 years. They were all cases of untreated refractive amblyopic patient's ranging from 6/12p to 1/60. It was performed by Triple Technique Therapy: a) Optimal refractive correction, b) Occlusion therapy, c) Vitamin b-12 doses. Main outcome measures – optimum improvement in best corrected visual acuity in the amblyopic eye and proportion of patient's where amblyopia resolved by TTT. Final visual outcome was not related to age but was related to better baseline visual acuity, lesser amount of refractive error and how religiously "TTT" was followed. "TTT" Improved visual acuity in 94% of the cases and results in complete resolution of amblyopia in 10.6% of the patients with untreated refractive amblyopia. Complete improvement in refractive amblyopia occurs with moderate degree amblyopia and there was an average 2- line improvement in distance visual acuity from "TTT" even in denser levels of refractive – amblyopia.
Keywords: Amblyopia, Refractive, Isometropic and Anisometropic, TTT.

INTRODUCTION

Le cat (1713) is credited with providing the first accurate clinical description of human amblyopia [1, 2]. However credit for first describing any treatment for amblyopia is given to George Louis Leclern, Conte De Buffon (1707-1788) [2].

Amblyopia is an impairment of vision arising from dysfunction of processing of visual information caused by degradation of the retinal image during a sensitive period of visual development [3-6]. Amblyopia causes a range of abnormality of visual functions. It is not the cause but the effect of another pathology commonly refractive errors, strabismus and early onset cataract [6].

Amblyopia is a frequent cause of monocular or binocular vision loss in children [7]. A difference in refractive error between the two eyes (anisometropia) [8, 9] or very high refractive error in both the eyes (isometropic) is the cause of cause of amblyopia [9]. Anisometropia is the only identifiable amblyogenic factor in 37% of cases and present concomitantly with strabismus in an additional 24% of clinical populations [8, 10]

Amblyopia cases need additional treatment by patching and vitamins scheduled dose along with the spectacle correction [11, 12]

We conducted a prospective study of the management of untreated refractive Amblyopia in age group 5 to >40 years old by our "TTT" the objectives were to find:

- The incidence of resolution of amblyopia
- The time course of distant visual acuity improvement, and
- Factors associated with resolution of amblyopia with "TTT"

METHODOLOGY

The study was conducted at four clinical ophthalmological sites with proper explanation to the parents of the kids and the ward/ attendant of the adult patients about the "TTT".

Screening visit and starting of "TTT"

Patients were enrolled with a history of untreated refractive amblyopia (both anisometropic and isometropic). Patients with measurable strabismus were excluded. Spectacles were prescribed based on 1% cyclopentolate refraction and anisometropia, isometropia, astigmatism and myopia were fully corrected. 27 absconded patients were also excluded from the study.

Occlusion of the better eye for 2-3hrs on working days and 8 hrs on holidays was advised and watching fast moving objects (preferably watching cartoons in TV) from the amblyopic eye with the given spectacle. Alternate occlusion in case of isomtropia was started .Inj. vitamin-b 12. I.M. in initial 9 months along with the oral vitamin B-12 therapy in rest of the duration was started and continued for 3 years.

Scheduled Doses of Vitamin B-12

INJ. VIT. B-12 1500 I.U. Weekly for 1month, biweekly for the next 2 months and monthly for next 6 months were given deep intramuscularly after proper Allergy and Sensitivity Test under supervision of the anaesthesist.

Along with this oral vitamin B-12 Tab. was started 1 O.D. in 5-10 years and 1 B.D. In 11 ->40 years age group was started accordingly.

Routine Examination

Patients were regularly followed up at 4 weeks interval for 4 months then every 3 months for a total duration of 3 years. Any improvement in vision was recorded on each visit.

RESULTS

Between May 2011 to Dec 2011, 253 patients with untreated refractive amblyopia were enrolled into this study at 4 sites and were followed for three years. Age group was between 5 years to >40 years. 27 patients were absconded.

Table 1: Age and sex wise distribution

No. of Patient (216)		Age Group
Female	**Male**	
05	10	05-10 years
102	73	10-20 years
15	10	20-40
00	01	>40 years

Table 2: Type of refractive error distribution

Type of refractive error		Total 216
Hypermetropia	**Myopia**	
203	13	

Table 3: Overall improvement in distant best corrected visual acuity on final follow-up visit

Total patients (216)	Snellen chart improvement
23	UPTO 6/6
77	6/12
09	6/18
69	6/24
25	6/36
13	No improvement
Overall % of improvement 93.9%	

DISCUSSION

In this prospective observational study of 216 untreated refractive amblyopia age group of 5 to > 40yrs, we found that "Triple – Technique – Therapy" was very effective in treatment of amblyopia as compared to spectacle correction alone – therapy.

Complete resolution was observed in 10.6% of the patients with overall improvement in about 94% of the patients. No improvement was observed in about 6% of the patients.

The time course in our study for improvement to best amblyopia eye visual acuity was variable. Majority of patients improved within 6 months and few upto 18 months but maintenance of the best corrected visual acuity (BCVA) was stable or improved for almost upto 3 years.

There can be many possible explanations for the continued improvement after apparent stability. These include the test – retest variability including poor

test performance on that particular day or the child was somehow quite irritable and non-cooperative on some bad day.

CONCLUSION

It was found that "Triple – Technique – Therapy" was very effective in treatment of amblyopia. Overall improvement in about 94% of the patients was seen. It is quite possible that visual acuity improvement may temporarily plateau for a time period and then improves further again [10]. Based on these factors, one should prolong the study duration to find more accurate results.

REFERENCES

1. Garcia-Quispe LA; The role of inhibition in the development of pattern vision in human infants. Pro Quest, 2008: 28.
2. Amblyopia. Available from http://w3.csmu.edu.tw/~shyan/CurriculumData/OptomIV/9702-OptomIV-2.pdf
3. Noorden GKV, Campos E; Binocular Vision and Ocular Motility. 6th edition, Mosby, St. Louis, 2002.
4. Campos EC; Amblyopia. Surv Ophthalmol., 1995; 40(1): 23-39.
5. Barrett B, Bradley A, McGraw P; Understanding the neural basis of amblyopia. Neuroscientist, 2004; 10(2): 106-116.
6. Guidelines for the management of amblyopia. Available from http://rcophth-website.www.premierithosting.com/docs/publications/GuidelinesfortheManagementofAmblyopia.pdf
7. de Zárate BR, Tejedor J; Current concepts in the management of amblyopia. Clin Ophthalmol., 2007; 1(4): 403–414.
8. Pediatric Eye Disease Investigator Group; The clinical profile of moderate amblyopia in children younger than 7 years. Arch Ophthalmol., 2002; 120(3): 281–287.
9. Doshi NR, Rodriguez MLF; Amblyopia. Am Fam Physician, 2007; 75(3): 361-367.
10. Pediatric Eye Disease Investigator Group; Treatment of anisometropic amblyopia in children with refractive correction. Ophthalmology, 2006; 113(6): 895–903.
11. Sahelian R; Amblyopia natural treatment, vitamins, dietary supplements. Available from http://www.raysahelian.com/amblyopia.html
12. Sahelian R; Lazy eye treatment, patching, supplements, medications. Available from http://www.raysahelian.com/lazyeye.html