

COMPARATIVE STUDY OF HURDLES PERCEIVED BY PARENTS IN OCCLUSION THERAPY FOR AMBLYOPIA AFTER TWO WEEKS AND SIX WEEKS OF TREATMENT IN INDIAN RURAL POPULATION

Vijay Kumar Srivastava¹

¹Professor and HOD, Department of Ophthalmology, MVJ Medical College and Research Hospital, Hoskote, Bangalore.

ABSTRACT

BACKGROUND

The aim of this study was to compare the hurdles in compliance of occlusion treatment reported by parents of children undergoing occlusion treatment for amblyopia as perceived after two weeks and four weeks of treatment in Indian rural population.

MATERIALS AND METHODS

Forty-eight newly diagnosed cases of unilateral amblyopia, aged four to eight years on initial consult were included. All were put on occlusion therapy and were followed up every two weeks for two months. Parents were educated every two weeks. Parents were interviewed two weeks and six weeks after starting treatment to give an account of hurdles perceived by them in complying with the treatment and a comparison was made.

RESULTS

Ten hurdles were identified while complying with occlusion therapy. While continuing with the treatment with regular education and increased understanding of the problem, most hurdles became less significant in parents' perception. Child's refusal and itching and irritation due to patch remained the major concerns during both interviews.

CONCLUSION

Hurdles during occlusion therapy become less significant with continued treatment coupled with patient education and better understanding of the problem.

KEYWORDS

Amblyopia, Occlusion Therapy, Compliance, Hurdles.

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BACKGROUND

Amblyopia means dull vision. It is defined as a unilateral or bilateral reduction of Best Corrected Visual Acuity (BCVA) that cannot be attributed to the effect of any structural abnormality of the eye. It is objectively measured as a BCVA, poorer than 20/40 bilaterally or a difference in BCVA of two or more lines using a Snellen chart or its equivalent. Common causes of amblyopia are strabismus, anisometropia or high bilateral refractive error and visual deprivation.

The incidence of amblyopia is reportedly between 2% and 5% worldwide.^{1,2,3}

The aim of amblyopia treatment is to improve visual acuity and to prevent or reverse vision impairment. With timely intervention, the reduction in visual acuity caused by amblyopia can be completely or partially reversed⁴ and even stereoacuity improves.⁵ The Amblyopic Treatment Study (ATS) showed that more than 75% of amblyopic children less than 7 years of age had significant improvement in their BCVA to 20/30 [0.176 LogMAR] or better after treatment.⁶ All patients

with amblyopia should therefore be treated and the caregiver educated.

The principles of amblyopia treatment are as follows: eliminate any obstacle to vision, correct refractive error, force the patient to use the poorer eye by penalisation with atropine or by patching of the better eye,⁶ and lastly surgery to treat the cause of the amblyopia if applicable.

Occlusion of the non-amblyopic eye has remained the mainstay of treatment in cases of unilateral amblyopia.^{7,8,9}

It is widely recognised that there is a critical period in early childhood, during which amblyopia must be identified if treatment with occlusion therapy (i.e. patching of the non-affected eye) is to be successful.⁹

Reported rates of compliance for patching vary widely from 49 to 87%.⁶ Low compliance to the patching regimen was identified as a major hindrance to the success of treatment.¹⁰ Compliance was found to be the most important factor affecting visual outcome.⁵

Parents of amblyopic children face many hurdles in compliance of occlusion therapy. Based on our experience at our centre, ten hurdles in compliance of occlusion therapy were identified, some of them were typical to beliefs that rural population in India have. This is a comparative study of hurdles perceived by the parents after two weeks and six weeks of occlusion therapy. Some of the hurdles initially perceived by the parents may become less significant with continuation of treatment coupled with patient education and better understanding of the problem.

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Corresponding Author:

Dr. Vijay Kumar Srivastava,

Professor & HOD,

Department of Ophthalmology,

MVJ Medical College & Research Hospital,

Hoskote, Bangalore-562114.

E-mail: vks_4186@rediffmail.com

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MATERIALS AND METHODS

Fifty-six newly diagnosed cases of unilateral amblyopia, aged four to eight years on initial consult, who were prescribed occlusion therapy were initially included in the study. Eight children could not be followed up, hence finally 48 children were retained in the study. The study adheres to the tenets of Declaration of Helsinki.

All patients were prescribed full time occlusion of the non-amblyopic eye from morning to evening with the help of an opaque adhesive patch. The regimen prescribed for occlusion was as per age.¹¹ Since the age group of patients was four to eight years, all patients were prescribed 6:1 rhythm (Six days of occlusion in the non-amblyopic eye and one day in the amblyopic eye). Types of amblyopia were strabismic 16 (33.33%), anisometropic 21 (43.75%), mixed 9 (18.75%) and sensory deprivation 2 (4.17%) (Table 1), (Fig. 1). A set of 10 questions were prepared (Table 2) based on our experience to ascertain the hurdles perceived by the parents in complying with occlusion therapy after two weeks and six weeks of therapy. Parents were educated about amblyopia and occlusion therapy before initiating therapy and thereafter every two weeks during followup. Parents were instructed to say yes to a question only if they felt that the factor in question was significantly affecting compliance. A comparison was made between responses made during interview at two weeks and six weeks after initiation of occlusion therapy.

RESULTS

On study of various factors, it was found that Child's refusal was perceived as a hurdle in 25 children (52.08%) at two weeks and 13 (27.08%) after six weeks of treatment. Fear of child being teased was present in 11 (22.92%) at two weeks and in 3 (6.25%) at six weeks. Itching, irritation of patch was reported by 11 (22.92%) at two weeks and in 13 (27.08%) at six weeks. Bathing problem was reported by 8 (16.66%) at two weeks and in 2 (4.16%) at six weeks. Inability to play was perceived by 10 (20.83%) at two weeks and in 8 (16.66%) at six weeks; 8 (16.66%) parents felt at two weeks that performance of their children will fall due to occlusion therapy, while the number fell to 2 (4.16%) at six weeks; 12 (25%) parents at two weeks and 8 (16.66%) at six weeks found difficulty in monitoring occlusion during school hours. In 2 (4.16%) cases at two weeks, the relatives and senior member of their joint families said that they do not have faith in this kind of therapy; however, with education their opinion changed by six weeks. In 2 (4.16%) cases believers in other discipline of medicine and quacks discouraged them for this mode of treatment and advised them to adopt their unscientific treatment; however, with time parents learnt to ignore them. Patch cost remained equal botheration both at two and six weeks of treatment reported by 7 (14.58%).

Types of Amblyopia	Number of Patients	Percentage
Strabismic	16	33.33%
Anisometropic	21	43.75%
Mixed	9	18.75%
Sensory Deprivation	2	4.17%
	48	100%

Table 1. Distribution of Types of Amblyopia in the Study Group

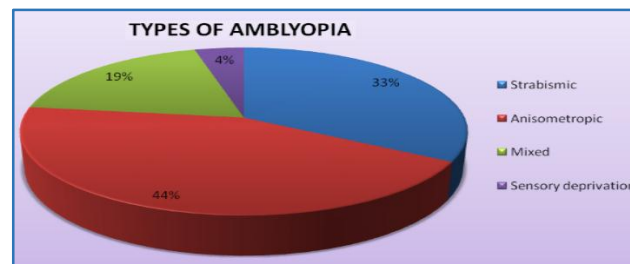


Figure 1. Distribution of Types of Amblyopia in the Study Group

	Hurdles Perceived by the Parents	2 Weeks		6 Weeks	
		Number	%	Number	%
1	Child's Refusal	25	52.08	13	27.08
2	Fear of Child being Teased	11	22.92	3	6.25
3	Itching, Irritation of Patch	11	22.92	13	27.08
4	Bathing Problem	8	16.66	2	4.16
5	Inability to Play	10	20.83	8	16.66
6	Fear that Child's Performance may Fall	8	16.66	2	4.16
7	Inability to Monitor patch during School Hours	12	25	8	16.66
8	Relatives and Seniors in Family not showing Faith in this Mode of Therapy	2	4.16	0	0
9	Believers in Other Discipline of Medicine and Quacks Discouraging them	2	4.16	0	0
10	Patch Cost	7	14.58	7	14.58

Table 2. Perception of Hurdles in Occlusion Treatment after Two and Six Weeks of Treatment

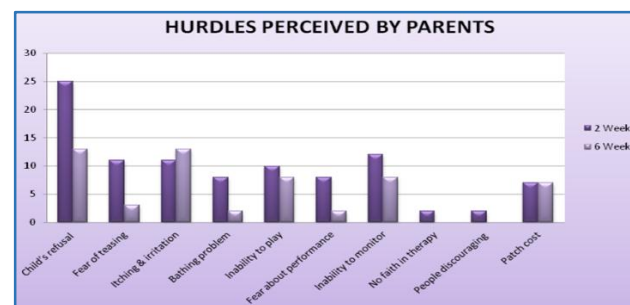


Figure 2. Trend of Perception of Hurdles in Occlusion Treatment after Two and Six Weeks of Treatment

DISCUSSION

For more than two hundred years, occlusion of the better eye has been used successfully in the treatment of Amblyopia. A statistically significant linear relationship between compliance and change in BCVA was demonstrated by London who showed that low increase in visual acuity had statistically lower compliance rates.¹²

Various compliance rates have been reported, Lucy K Smith et al found an overall compliance rate of 51% when patients were followed for 10 years.¹³ One study shows it to be

more than 70%¹⁴ however, it depends on study group selected and period of followup.

Based on our experience at our centre ten hurdles in compliance of occlusion therapy were identified, some of them were typical to beliefs that rural population in India have. In our study, the following hurdles in compliance were studied and are discussed in the following description.

Child's refusal: In the beginning of treatment majority of children revolted against patching, but when they understood the need of treatment this refusal lessened to some extent. We found child's refusal to be 52.08% at two weeks and 27.08% at six weeks. Mellissa et al¹⁵ found child's refusal in 44% cases and Ahmed et al¹⁶ reported it to be 19.44%. Our study clearly specifies the trend of child's refusal at two periods during treatment.

Fear of child being teased was found in 9% cases in one study¹⁶ and 36.11% in another study.¹⁶ We found it to be in 22.92% cases at two weeks and 6.25% at six weeks of treatment in our study.

Itching, irritation of patch was reported by the parents in 22.92% at two weeks and 27.08% at six weeks of treatment in our study. Ahmed et al¹⁶ has reported the same in 19.44% patients.

India being a hot country, regular and frequent bathing is required. Maintaining and changing patch may pose difficulty. Statistics for this hurdle is not available in world literature; 8 (16.66%) parents reported this hurdle at two weeks; however, only 2 (4.16%) considered it to be a hurdle at six weeks. Some hurdles like inability to play, fear that child's performance may fall, inability to monitor patch during school hours were found in various degrees at two weeks were all improved at six weeks.

India is a country of various faiths. Six religions are followed and there are alternative disciplines of medical treatments available and practiced, eg. Ayurveda, Homeopathy, Unani (Perso-Arabic traditional medicine) and various others. When asked to occlude the better seeing eye, relatives and seniors in family may not show faith in this mode of therapy. Even someone will discourage the patient by calling the treatment odd. This was reported only in two cases, but it was resolved by further education and explanation.

Patch cost remained an equal concern both at two weeks and six weeks of treatment.

Reasons for perception of lesser hurdles in compliance of occlusion therapy after six weeks are likely due to various reasons.

This may be the result of ongoing education imparted at every two weeks interval when patient visits our centre. The child understands the need of undergoing treatment better at six weeks than at two weeks of treatment. Consequent to our instructions, parents discussed the issue with their neighbours and school teacher resulting in reduction of objectionable comments from the society.

Improvement in vision after six weeks becomes a motivating factor. With time and education, the misconceptions about occlusion treatment lessens. Constant interaction with the parents improves their knowledge of amblyopia, attitude towards the problem, insight in management and it lessens the fear of community reaction. All these factors have a strong bearing on compliance.¹⁶

A better understanding of hurdles faced in occlusion therapy will go a long way in improving the visual outcome in amblyopic children. On review of literature, it seems to be the first study of its kind in the world where comparison of hurdles in implementing occlusion therapy is compared over certain duration of time.

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