

Original Article

Compliance to patching in the treatment of amblyopia

Ahmed Al-Yahya, MD^{*}; Khalid Al-Odan, MD; Khalid Allam, MD; Badriya Al-Onazi, CO; Ahmed Mousa, PhD; Ahmed A. Al-Saleh, MD

Abstract

Purpose: To evaluate compliance of amblyopic patients to patching, and to identify reasons of poor compliance and suggest methods to overcome the problem.

Methods: We conducted a cross-sectional, retrospective study that included 37 families with a child diagnosed with unilateral amblyopia (age range 3–16 years) and attending the Pediatrics Ophthalmology clinic at the King Abdulaziz University Hospital (a tertiary eye hospital). Data were collected through interviews and from hospital charts. In the interviews we asked questions that sought information with regard to four aspects (domains); knowledge, attitude, insight and community's effect. A score representing each domain was given to every family then we correlated these scores with family's compliance percentage.

Results: When correlated with compliance, the insight and attitude domains showed a statistically significant correlation; *p*-value 0.002 and 0.004, respectively. However, the knowledge and community's effect domains were not; *p*-value 0.084 and 0.114, respectively. Other qualitative factors affecting compliance were identified with open questions. Quotes from families of what they think can improve compliance are shown.

Conclusion: To improve compliance, merely educating patients is not sufficient and more efforts should be undertaken toward ensuring true sense of the problem and its impact. Factors affecting compliance due to the physical properties in the patch itself should be addressed too (heat, irritation, poor adhesive material and design).

Keywords: Patching, Amblyopia, Pediatric ophthalmology

© 2012 Saudi Ophthalmological Society, King Saud University. All rights reserved.
<http://dx.doi.org/10.1016/j.sjopt.2012.05.003>

Introduction

Amblyopia is a major public health problem which can affect up to 5% of the general population.¹ It is thought to develop early in life during the critical period of visual development. Early recognition of amblyogenic risk factors such as strabismus, refractive errors, and anatomic obstructions can facilitate early treatment and increase the chance for recovery of visual acuity.² Many studies explored the impact of amblyopia on a child's life. Amblyopia can interfere with school progress, sporting and even later career

choices. It causes psychosocial difficulties that can affect individuals' self-image. Patients with amblyopia have a greater degree of interpersonal sensitivity, depression, and anxiety.³ After treating the cause of amblyopia treatment is by patching with a varying dose ranging from an hour to full time occlusion.⁴ Many factors can affect treatment's outcome. However, a major factor in treatment failure is inadequate adherence to the treatment regimen.⁵ And here came the question; What are the factors affecting compliance? And are these factors parental or community related?

Received 20 March 2012; received in revised form 5 May 2012; accepted 15 May 2012; available online 31 May 2012

Department of Ophthalmology, College of Medicine, King Saud University, Riyadh, Saudi Arabia

^{*} Corresponding author. Address: Department of Ophthalmology, King Abdulaziz University Hospital, King Saud University, P.O. Box 245, Riyadh 11411, Saudi Arabia. Tel.: +966 1 477 5723; fax: +966 1 477 5724.
e-mail address: alyahya.a86@gmail.com (A. Al-Yahya).

Methods

We conducted a cross-sectional, retrospective study that included 37 families with a child diagnosed with unilateral amblyopia (age range 3–16 years) and attending the Pediatrics Ophthalmology clinic at the King Abdulaziz University Hospital (a tertiary eye hospital). This study was approved by hospital’s research ethics committee. An informed consent was obtained from participants after explanation of the study.

Data were collected through interviews conducted either in the clinic or over the phone (five families) and from hospital charts. In the interviews we asked questions that sought information with regard to four aspects (knowledge, attitude, insight and community’s effect domains). The knowledge domain sought whether parents knew about the disease, its types and ways to treat it with questions such as: Do you know what type of amblyopia your child has? The insight domain sought whether parents appreciated the magnitude of the problem and the importance of their role in managing it with questions such as: Do you think that you are doing a good job managing the problem? or Do you think that your child is compliant? The attitude domain assessed whether parents were active participants in the management of amblyopia with questions such as: Do you check your child frequently if he/she is wearing the patch? Do you check if the child is not repositioning the patch so that he/she can peek? Community’s effect domain sought if parental adherence to the treatment could be affected by community’s acceptance with questions such as: Does this issue cause embarrassment to the family or child when going out?

A score representing each domain was given to families then we correlated these scores with family’s compliance percentage. The compliance percentage was calculated by dividing the number of actual patching hours per week by ophthalmologist’s prescribed patching hours per week. After the correlation a *p*-value of less than 0.05 was considered significant.

Results

The mean age in our study was 8.14 years. Mean age when first diagnosed was 5.38 years. Mean compliance percentage was 66.68%. In our study population, 35% had strabismus, 14% had anisometropia and 5% had obscured vision. Forty-seven percent had both anisometropia and strabismus. When correlated with compliance the insight and attitude domains showed a statistically significant correlation; *p*-value 0.002 and 0.004, respectively. However, the knowledge and community’s effect domain were not; *p*-value 0.084 and 0.114, respectively. (Tables 1 and 2). When families were asked an open ended question about the reasons of poor compliance

Table 1. Demographics.

	Mean	Std. deviation	Minimum	Maximum
Age	8.14	3.08	3.00	16.00
Age when first diagnosed	5.38	3.04	1.00	14.00
Compliance percentage	66.68	34.36	0.00	100.00

Table 2. Correlations between compliance and different domains.

	Knowledge	Attitude	Insight	Community’s reaction
	<i>p</i> -Value			
Compliance	0.084	0.004	0.002	0.114

the most frequent causes were: social stigma (36.11%), itch/irritation (19.44%), child’s refusal (19.44%), heat/sweating (16.66%). When we asked whether the shape of the current widely used patch could affect actual compliance 64.86% said yes. In our community when parents were challenged by a non-complying child 48.93% tried convincing the child to use the patch, 40.42% tried positive reinforcement (reward system) and 10.63% forced the child into it.

Quotes from families of what they think can improve compliance: “There should be community wide educational programs about lazy eyes” Parent 11. “More information about the nature of the disease should be explained to the caretaker” Parent 6. “Family members can help improve compliance if they wore the patch along with the affected child” Parent 7.

Discussion

A practice that we see commonly adopted by physicians is that they rely solely on educating patients without communicating with patients’ concerns and comprehension of the problem. We observed in our study that knowledge about the disease in itself is not significantly correlated with compliance (*p* = 0.084). On the other hand an insight which could be looked at as the capacity to discern the true nature of a situation was the factor most likely affecting compliance (*p* = 0.002). We suggest that merely educating patients is not sufficient and more efforts should be undertaken toward ensuring a true sense of the problem and its impact. In addition proving the efficacy of treatment is important as many parents question the credibility of patching.⁶ Another factor that affected compliance in our study is the attitude toward the problem and parents’ active participation (*p* = 0.004) which is expected because those who act whether by forcing their children or encouraging them would have a higher compliance. When we asked parents openly about reasons of poor compliance the most frequent cause was social stigma in public. Although they have stated this we could not correlate community’s effect domain with their compliance (*p* = 0.114). We did not explore child factors as we would need an approach that is applicable to each age group making child factors difficult to treat as one domain. The age range in our study was high (3–16 years) but we do not think that this would affect the results as we were exploring parental qualitative factors and reasons of poor compliance regardless of whether the child would improve or not. A limitation in our study is the subjective nature of self-report accounts of parents which yielded a compliance percentage of 66.86%. A high number indeed when compared to studies that used occlusion dose monitors to assess the compliance of 48%–68%.^{4,7} Another limitation that could be addressed in future studies is exploring the clinician factor domain. The parents mentioned different reasons for the poor compliance, most of which revolved around the nature of the patch

itself (heat, irritation, poor adhesive material and design) which we think is easy to overcome, but is it truly a reason of poor compliance? that we have to prove after addressing these physical properties described by the parents with a newly designed patch. In the results are some quotes from parents. We find one of them very interesting that referred to the normalization method in which the parents were wearing the patch along with the child.⁶

Conclusion

Amblyopia is a major public health problem that can impair children's lives. Compliance is an important factor affecting the outcome. To improve compliance, merely educating patients is not sufficient and more efforts should be undertaken toward ensuring true sense of the problem and its impact. Factors affecting compliance due to the physical properties in the patch itself should be addressed (heat, irritation, poor adhesive material and design).

References

1. Carlton J, Kaltenthaler E. Amblyopia and quality of life: a systematic review. *Eye (Lond)* 2011;**25**(4):403–13.
2. Nipa D, Maria R. Amblyopia. *Am Fam Physician* 2007;**75**(3):361–7.
3. Packwood EA, Cruz OA, Rychwalski PJ, Keech RV. The psychosocial effects of amblyopia study. *J AAPOS* 1999;**3**(1):15–7.
4. Stewart CE, Fielder AR, Stephens DA, Moseley MJ. Design of the Monitored Occlusion Treatment of Amblyopia Study (MOTAS). *Br J Ophthalmol* 2002;**86**:915–9195.
5. Lithander J, Sjöstrand J. Anisometropic and strabismic amblyopia in the age group 2 years and above: a prospective study of the results of treatment. *Br J Ophthalmol* 1991;**75**:111–6.
6. Dixon-Woods M, Awan M, Gottlob I. Why is compliance with occlusion therapy for amblyopia so hard? A qualitative study. *Arch Dis Child* 2006;**91**:491–4.
7. Loudon SE, Fronius M, Looman CW, Awan M, Simonsz B, van der Maas PJ, et al. Predictors and a remedy for noncompliance with amblyopia therapy in children measured with the occlusion dose monitor. *Invest Ophthalmol Vis Sci* 2006;**47**(10):4393–400.