



Causes and Type of Strabismus in Paediatric Department of Al-Ibrahim Eye Hospital, Malir, Karachi

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Abstract

Purpose: To determine the type and causes of strabismus in paediatric department of Al-Ibrahim Eye Hospital.

Methods: Observational study with 69 patients who were full fill the criteria of inclusion and exclusion. This study provided baseline information regarding the strabismus or cross-eyes, which was treatable, also promote to health education regarding strabismus and educate other health care practitioners, including primary care physicians about visual complications of strabismus and the availability of treatment and management.

Results: The most common cause was by birth in which 25 (36.2%) patients were found. Out of 69 patients 46 (66.7%) patients were found Esotropia the rest of patients found with exotropia 23 (33.3%).

Conclusion: This study highlights the common risk factors were by birth, fever, Syndromes and other systemic factors.

Keywords: Esotropia; Exotropia; Strabismus; Cross Eye

Introduction

Strabismus consists of any deviation of binocular alignment. It is commonly referred to as a 'squint' or 'lazy eye'. The

most debilitating consequence of untreated strabismus is the development of amblyopia (permanent loss of best corrected visual acuity in a structurally healthy eye) [1]. Strabismus also

significantly affects quality of life, with lifelong cosmetic disability that may result in poor self-esteem, social prejudice and restricted career opportunities [2].

Deviation of one eye or both eyes by birth or first year of life called congenital esotropia or infantile esotropia [3].

Material and Methods

Observational Study Design.

- **Study Setting** Paediatric department of AL Ibrahim Eye Hospital, Malir, Karachi.
- **Study Duration** May to October 2021.
- **Sample Techniques** Non-Probability Sampling.
- **Sample size:** 69 (according to inclusion and exclusion criteria).
- **Inclusion criteria:** 5 to 15 years and both genders were included.
- **Exclusion criteria:** Those who were not willing to give consent and greater than 15 years of age.
- **Data collection procedure:** The protocol for examination for all patients who were evaluated at the pediatrics outpatient clinic, A detailed history taken from each patient, Visual acuity of every patient checked and recorded separately both for near and distance, with and without glasses, and with pin-hole. The anterior segment examined with a slit-lamp by Ophthalmologist, All the patients were examined after obtaining a fully informed consent.
- **Orthoptic assessment included:** Cover uncover test, Hirschberg, Ocular motility, Prism cover test, krimsky, prism reflex tests at 33cm for near, and at 6 meters for distance, with spectacles and without spectacles. Cycloplegic refraction of all patients will done using cyclopentolate 0.5% -1% eye.
- **Instruments to be use:** Following instruments used during data collected.

Vision Chart of preschool and school going Children, Occluder (cover and uncover test), Prism bar (PCT), Targets (performing near PCT and for Ocular motility), Torch, Ophthalmoscope, Cycloplegic drug.

Results

A total of 69 patients fulfilled the inclusion criteria for the study. Among them 26 were female and 43 were male. The mean of age at

presentation was 9.01 in which maximum number of patients that is 38 (54.0%) came in the age group of age 5 to 8 years (Table 3 gender distribution in male and female).

Initially the more patients had visual acuity was 6/6 to 6/12, 41(59.4%) in the right eye while in left eye was also 6/6 to 6/12, 41 (59.4) whether in near was N6 to N10, 45(65.2%) in the right eye where in left eye was also N6 to N10, 44 (64.8%). When the distance and near Hirschberg taken the most frequency had seen in between 5 to 15 degrees. (Table 4 Distribution of age from 5 years to 15 years).

Out of 69 patients 46 (66.7%) patients were found esotropia the rest of patients found with exotropia 23 (33.3%). Cover test performance after the visual acuity had found in good. In most patients the technique of measurement of deviation performed according to patient’s visual acuity. In which, the Prism Cover Test (PCT) had shown the highest frequency. (Table 1 deviation of eye detected by cover test).

Strabismus	Frequency	Percentage	Total
Esotropia	46	(66.7%)	69 (100%)
Exotropia	23	(33.3%).	

Table 1: Deviation of eye detected by cover test.

The most common cause was by birth in which 25 (36,2%) patients were found. The second most leading cause was amblyopia which was 16 (23.1%). The rest were trauma 10(14.4%), fever 6 (0.08%), family history 5 (0.07%), neurological 4 (0.05%) Duane Syndrome 2 (0.02%) and Down Syndrome 1 (0.01%) (Table 2 causes to develop strabismus).

Causes of strabismus	Frequency	Percentage	Total
By birth (Congenital)	25	36,2%	69 (100%)
Uncorrected refractive error	16	23.1%	
Trauma	10	14.4%	
Fever	6	0.08%	
Family positive history	5	0.07%	
Neurological	4	0.05%	
Duane syndrome	2	0.02%	
Down syndrome	1	0.01%	

Table 2: Causes to develop strabismus.

Gender	Frequency	Percentage	Total
Male	43	62%	69 (100%)
Female	26	38%	

Table 3: Gender distribution in male and female.

Age group	Frequency	Percentage	Total
5 years to 8 years	39	54.0%	69 (100%)
Greater than 9 years to 11 years	12	18.5%	
Greater than 11 years to 15 years	18	27.5%	

Table 4: Distribution of age from 5 years to 15 years.

Discussion

A total of 349 children presents during study period attended in orthoptics clinic and 69 patients were fulfilling the inclusion criteria therefore 280 were excluded.

According to a survey in USA Prematurity and maternal smoking during pregnancy is associated with a higher risk of having esotropia and exotropia. Refractive error is associated in a severity-dependent manner to the prevalence of esotropia and exotropia [4].

In our study uncorrected refractive errors were associated with causes of strabismus. The most common cause was by birth.

Moreover, another study showed strabismus was associated with astigmatism ≥ 1.00 diopter (D; $p = 0.03$), amblyopia ($p = 0.003$), a sibling with strabismus ($p < 0.001$), and families with lower parental education ($p = 0.04$). In addition to strabismus, amblyopia was associated with anisometropia ≥ 1.00 D ($p < 0.001$) and astigmatism ≥ 1.00 D ($p < 0.001$). No association was noted between either strabismus or amblyopia and prematurity, maternal age or smoking. This study highlights the importance of family history in strabismus, and the close associations between refractive error and strabismus with amblyopia. These factors play a more important role in young Singapore Chinese children [5].

However, in our study it has also been found that 12.8% squint was associated with family history. Whereas, leading cause of squint was birth 64.1%, fever was found 15.3%, duan’s syndrome was found 5.1% and down syndrome was found 2.5% also showed

that 39 (56.5%) in which they were By Birth, fever, Syndromes and other systemic factors which occurs strabismus furthermore amblyopia was the second most leading cause of strabismus which was 16 (23.1%). as trauma 10 (14.5), neurological 4 (5.8).

Conclusion

This study highlights the common risk factors were by birth, fever, Syndromes and other systemic factors the close associations between refractive error and strabismus with amblyopia. These factors play a more important role developing strabismus in young children.

Recommendation

Strabismus is a public health problem; proper mass screening and awareness should be arranged to prevent amblyopia. Primary eye physicians or primary eye care persons should screen all the children for strabismus. All cases of strabismus should be referred to an optometrist and ophthalmologist for the better management and investigation.

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