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Strabismus in children in Ibadan

***A.M. BAIYEROJU-AGBEJA, J.F.A. OWOEYE**

From: Eye Department, University College Hospital, Ibadan.

SUMMARY:

This study was initiated with the aim of finding out the prevalence and causes of childhood squints. Over a 5 year period, all children under the age of 16 years who presented with different forms of strabismus at the University College Hospital were collected for this study. 80% of the patients (16 patients) had esotropia, 50% of which was due to hypermetropia (8 patients) and 31% (5 patients) was due to perinatal problems. 2 patients had ocular causes for their exotropia, a traumatic cataract and a macular soar. During the same period, a school survey was done to find out the prevalence of strabismus among school children. This was found to be 0.26% as opposed to 0.4% incidence found in the eye clinic.

KEY WORDS: *Strabismus, child.*

INTRODUCTION

Strabismus is one of the most common ocular disorders encountered among caucasian children[1]. The misalignment may be manifest in any field of gaze, may be constant or intermittent, and may occur at near or distant fixation or both. Early detection of strabismus is essential for restoration of proper alignment of the visual axes and establishment of binocular vision[1]. Strabismus is thought to be uncommon in Ibadan (observation and so this study was instituted to find out the prevalence and causes of childhood squint, which has hitherto not been studied in our environment. A similar study done in Zaire showed a 1.5% incidence of strabismus[2] although most Zairians have a large pupillary distance and hypertelorism resulting in a high incidence of exodeviation.

MATERIALS AND METHODS

All children under the age of 16 years who presented with strabismus (squint) to the eye clinic of the University College Hospital, Ibadan, for the first time over a 5 year period 1992–1996 were included in the study.

Parameters recorded included age, sex, type of squint, visual acuity (if recordable), extraocular muscle defects, cause of squint (if known), associated refractive errors, associated ocular diseases and treatment (if any). Some children required an examination under anaesthesia for a full ophthalmic examination and refraction through dilated pupils. To find out the prevalence of strabismus, a schools survey was carried out during the same period, among school children under the age of 16 years. 3 primary and secondary schools were chosen and all pupils in arm "A" was the most constant in all the schools.

RESULTS

Over the 5 year period[20], cases of strabismus were collected in children under 16 years of age in the clinic. Over the same period, a total of 5,093 new patients were seen in the eye clinic (both adults and children) i.e. those who attended the eye clinic for the first time. Childhood strabismus therefore accounted for 0.4% of the total number of new cases. Out of the 5,093 new cases, 1,022 were under the age of 16 years, children making up 20% of all new cases. In the schools surveys, 759 children were examined and only two were found to have squint, both were convergent, a prevalence of 0.26%. In this study there were 8 males and 12 females, a male: female ratio of 1:1.5. The age range is shown in Table 1. 55% of the patients were under 5 years, about half of them being under 1 year of age (5 patients).

Regarding laterality, 5 had the right affected, 6 had the left eye and 9 had alternating strabismus.

There were 16 esotropias (convergent squints) and 4 exotropias (divergent squints), the esotropia

**Author for Correspondence*

Table 1. *Age range of children with strabismus*

Age Range	Number
0 – 5 years	11
6 – 10 years	6
11 - 16 years	3

constituting 80% of all the squints seen (Table II). Table III shows the state of refraction of the patients. It is of importance that 9 out of the 13 patients with refractive error had hypermetropia (69%).

8 children with esotropia were hypermetropic, the 9th hypermetropic child had extropia of +5.00 DS. One child with esotropia was myopic (–2.00DS). Amblyopia was noted in 4 eyes with esotropia although poor vision was also noted in 2 eyes with

Table 2. *Types of squints in the children*

Types of squint	Number
Esotropia	16 (80%)
Exotropia	4 (20%)

exotropia, one had a traumatic cataract and the other had a macular scar.

4 eyes were found to have extraocular muscle weakness, all 4 had paresis of the lateral rectus due to esotropia, causing limitation in abduction of the affected eye.

Apart from the 13 children with refractive errors, other causes of strabismus included a traumatic 6th cranial nerve palsy (following a road traffic accident), brain damage following kernicterus in a premature baby, and a lateral rectus paresis from birth, all 3 patients having esotropia. Two patients had exotropia with known causes; one had a chorioretinal scar extending from the disc to the macular with some vitreous bands, and the other patient had a longstanding traumatic cataract, both of them over the age of 10 years.

Table 3. *Types of refractive errors found*

Refractive errors	Number
Hypermetropia (+2.50D to +8.5OD)	9 (69%)
Myopia (-2.00D to –7.5OD)	4
No error	7

Only 2 patients did not have the cause ascertained, both were under 1 year old, with exotropias which had been present since birth.

DISCUSSION

Strabismus is one of the most common ocular disorders encountered in caucasian children[1]. Strabismus was thought to be rare in blacks but a study in Zaire, showed a 1.5% incidence of strabismus[2] as opposed to the incidence of 0.4% found in our study and 0.26% of the schools survey. This high incidence in Zaire could be due to the fact that a large pupillary distance and hypertelorism were found to be common in the Zairian people resulting in a high incidence of exodeviation, as 1.25% of the 1.5% were due to exodeviation (83% of total).

In our study, only 20% of the total number of patients was due to exodeviation (4 patients). It is well known that hypermetropia is the most common cause of exotropia in children[3,4]. This was borne out in our study which showed 50% of exotropias being due to hypermetropia (8 patients). 3 patients had cranial nerve problems occuring around the perinatal period and 2 had congenital esotropias. The remaining 3 patients with esotropia were myopic. Myopic patients are known to develop exotropia due to the poor incentive for accommodation as the patients can see to read without accommodating. In our study, only one myopic patient was exotropic, the other 3 had esotropia. There has been some debate over the pattern of developmental change in average refractive error[6–8] but the consensus is that most eyes at birth are hypermetropic due to the small size and so would explain why more yes were esotropic. In previous studies[9,10], a third of all newborn infants were found to have esotropia during the first few months of life which usually re-alligns if there is no refractive error.

In our study, 80% of the patients were esotropic, the most common type of squint found in childhood:

In children under 5 years of age, injured eyes usually converge but over 5 years of age and in adults, injured eyes diverge[11]. Two of our patients with injured eyes had exotropia, both over 10 years of age. This is due to distruption of binocular vision by the acquired lesion which could be lens opacity, scars on the retina or cornea. Over the years, the divergent injured eye becomes increasingly exotropic. Apparently, when ungoverned by binocular vision, tonic divergence prevails over tonic convergence[11].

In conclusion, although strabismus is one of the most common ocular disorders encountered in caucasian children, this was not found to be the case in Ibadan accounting for 0.4% of the total number of new cases presenting at the clinic, and 0.26% of the

schools survey. It is of importance to diagnose the cause of the strabismus as some could easily be treated with simple correction by glasses.

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