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Original Research Article

Evaluation of strabismus in 0-18 years of age group in tertiary health care hospital: A prospective cross-sectional observational study

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ABSTRACT

Background and Objective: The main objective of the study was to study the pattern of strabismus, determine the type of refractive error and measure the angle of deviation, determine streoacuity by WFDT in 0-18 years of age group.

Materials and Methods: This was a prospective cross-sectional observational study. Total 50 patients were taken. Patients of 0-18 years of age presenting with squint included in study. Patients were evaluated for VA, both distance and near vision without glasses as well as BCVA tested. Anterior segment evaluation using slit lamp, cycloplegic refraction using atropine (0-9 years) or cyclopentolate (10-18 years), fundus examination, PBCT, WFDT test done.

Results: In study, total 50 subjects of 0-18 years of age group was taken. In them boys were more than girls. 49(98%) had comitant strabismus and 1(2%) had incomitant strabismus. 32(64%) had esotropia and 18(36%) had exotropia. Among esotropia 11(34.37%) had accommodative esotropia, 13(40.62%) had partially accommodative, 7(21.87%) had non accommodative, 1(3.12%) had restrictive esotropia. Among exotropia 9(50%) had basic exotropia, 6(33.33%) had divergence excess and 3(16.66%) had convergence insufficiency. 14(28%) had amblyopia. 32(64%) had hypermetropia and 18(36%) had Myopia. 33(64%) had central fixation and 12(24%) had eccentric fixation. In binocularity, 6(12%) had ARC, 25(50%) had unilateral suppression, 10(20%) had alternate suppression.

Conclusions: Comitant squint was more common than incomitant squint. Among comitant squint, esotropia was more common than exotropia.

1. Introduction

Strabismus is commonest childhood eye disorders second to refractive error.[1] Strabismus refers to ocular misalignment, which may be caused by abnormalities in binocular vision or by abnormalities of neuromuscular control of ocular motility. Strabismus may lead to amblyopia, impaired stereopsis, diplopia, altered cosmesis and affects social standing.[2,3] The prevalence of strabismus worldwide is reported to vary from 1.3% to 5.7% of all children[4] although a study from southerrn India has shown a lower prevalence of 0.7%.[5] Strabismus in childhood is relatively common, that altered the binocular vision perception in amblyopia that lead to decreased sensory fusion and poor or absent stereopsis, therefore early diagnosis and treatment needed to prevent amblyopia.[6]

2. Materials and Methods

Ethical clearance was obtained from the Institutional Ethics Committee. The study was carried out from May 2019 to May 2020. It was the prospective cross-sectional observation study. 50 patients with strabismus were enrolled in this study. Consent for participation was obtained from the adults accompanying the children. Detailed history were taken including chief complaints, history of previous use of glasses, duration of strabismus, past history, family history,

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birth history, personal history, drug history followed by general and systemic examination. Patients were examined under torch light and slit lamp examination for anterior segment examination. Patients were thoroughly evaluated for visual acuity, both distance and near vision with naked eye as well as best corrected visual acuity and cycloplegic refraction using atropine (0-9 years) and cyclopentolate (10-18 years), fundus examination was done. Strabismus was evaluated using hirschberg corneal reflex test, cover test, alternate cover test, prisum bar cover test, AC/A ratio by Heterophoria method and Worth four dot test.

3. Results

Total 50 patients were in the study, there were 34(68%) patients in 0 to 9 years of age group and 16(32%) patients in 10 to 18 years of age group. There were 27(54%) males and 23(46%) female in the study. In the pattern of strabismus, 1(2%) patient had incomitant strabismus and 49 (98%) patients had concomitant strabismus. Out of 32 patients of esotropia, 29(93.54%) patients from 0-9 years age group. 2 (6.45%) patients from 10 -18 years age group. Out of 18 patients of exotropia, 4(22.22%) patient from 0 – 9 years of age group. 14(77.77%) patients from 10-18 years of age group.

Table 1: Distribution of patterns of esotropia in the study

Type of Esotropia	No. of Patients
Accommodative	11(34.32%)
Partially Accommodative	13(40.62%)
Non Accommodative	07(21.87%)
Restrictive Esotropia	01(3.12%)
Total	32 (100%)

Table 2: Distribution of patterns of exotropia in the study

Types of Exotropia	No. of patients
Basic	09(50%)
Divergence excess	06(33.33%)
Convergence insufficiency	03(16.66%)
Total	18(100%)

In our study, 32(64%) patients had hypermetropia and 18 (36%) patients had myopia. 14(28%) subject had amblyopia. In which 6(42.86%) subject had esotropia and 8(57.14%) had exotropia and out of that 14 amblyopia patients 5 patients had central fixation and 9 patients had an eccentric fixation. In our study, 36(72%) patients had degree of deviation between 10 – 30PD and 5(10%) patients had degree of deviation > 30 PD and 9 (18%) patients were uncooperative.

4. Discussion

Strabismus may lead to failure of development of binocular vision, and amblyopia, timely diagnosis and appropriate treatment of children with strabismus can reduce the prevalence of amblyopia and ocular misalignment in later childhood and adult life.

We performed a cross sectional study to evaluate the pattern of strabismus in the children age group 0-18 years. In our study, comitant strabismus were more common than incomitant, similarly in Tarakeswara Rao Attada et al. study, 1 duan's retraction and 4 paralytic strabismus seen.[7] Greenberg AE et al. Study, 6.5% paralytic squint seen.[8]

Esotropia and exotropia were compared separately, In our study esotropia was found to be more common in 0-9 years of age group while exotropia was found to be more common in 10-18 years of age group. In Tarakeswara Rao Attada et al. study esotropia was found to be more common in 3-10 years age group while exotropia was more common in 11-16 years age group.[7] In which 34 subject had exotropia and 24 subject had esotropia. Rimsha Sarosh et al. study showed 59.93% had esotropia, 36.6% had exotropia.[9] Similarly in Mohney BG et al. esotropia is the most common form in the first six years of life; beyond this age exotropia predominates.[10] In all these study different age group was considered and the age of onset cannot be determined as the history obtained from parents becomes the only source and by itself is not very accurate. In our study, the less number of cases of intermittent exotropia can be explained by parents of these children do not seem to be overly concerned about a deviation that is present only during a part of the day. Tarakeswara Rao Attada et al. study 14.7% had intermittent exotropia, Rimsha Sarosh et al. study 37.17% had intermittent exotropia.[7,9]

There is an inexplicable superstitious belief in the study population that strabismus brings good luck to the family of these children. So the parents of boys were unwilling to let their children undergo surgery. The majority of girls with strabismus do not seek surgery until marriageable age. By this time there could be gross loss of stereopsis and probably even loss of vision. In Tarakeswara Rao Attada et al. study 15.25 % subject had Amblyopia.[7] Parents are not aware of the adverse outcome of untreated strabismus is thought to be a major reason of their affected child not being discovered earlier. This study has shown that many parents are not aware of the need for timely treatment of strabismus, suggesting that childhood strabismus is often neglected by the public at large.[11] This highlights the need for a greater emphasis on health education at the community level.

The National program for control of blindness has incorporated school screening at the middle and high school levels because the children at this age are more likely to respond to the screening.[12] Earlier detection of refractive errors (18 months to five years) has a better visual outcome due to the treatment of amblyopia.

5. Source of Funding

None.

6. Conflict of Interest

The author declares no conflict of interest.

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