VOLUME - 11, ISSUE - 10, OCTOBER - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Ophthalmology

PREVALENCE OF STRABISMUS IN CHILDREN ATTENDING A TERTIARY CARE HOSPITAL IN KASHMIR

Haziqa Zahoor* Postgraduate, Department of Ophthalmology, Government Medical College, Srinagar *Corresponding Author

Aisha Kouser Postgraduate, Department of Ophthalmology, Government Medical College, Srinagar

ABSTRACT

Background: Strabismus is an ocular condition wherein the visual axis of two eyes do not meet at an object of regard, with esotropia being the most common pattern of strabismus. **Aim:** To find the prevalence of strabismus in children between 5-20 years of age attending the OPD of Department of Ophthalmology, Government Medical College, Srinagar. **Methods:** This was a cross-sectional study wherein 3000 patients between the age group of 5-20 years attending the OPD of a tertiary care centre from august 2019 to august 2021 were taken into consideration. Proper birth history and family history was taken from these patients. Proper ophthalmological examination was done which included uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA). Ocular misalignment was diagnosed by cover uncover test and angle of deviation was measured by prism bar test. **Results:** Out of 3000 patients, only 60 patients were found to have strabismus with overall prevalence of strabismus in our study being 2%. In our study, 66.7% cases were girls and 33.3% cases were boys. Esotropia was most prevalent form of strabismus accounting for 60% of cases followed by exotropia accounting for 40% cases **Conclusion:** Our study indicated the prevalence of strabismus as 2%. Proper screening, early detection and adequate management of ocular misalignment can help in reducing the burden of strabismus in the population.

KEYWORDS : Esotropia; Exotropia; Strabismus.

INTRODUCTION

Strabismus refers to misalignment of one or both the eyes.[1] It is a common ocular disorder in children with prevalence ranging from 2.3% to 6.0%.[2,3,4] The most common form of strabismus is esotropia which constitutes about half to two thirds of all the forms of strabismus.[5] Hyperopia of ≥ +3.00 Diopters is associated with esotropia and the risk of developing esotropia increases as the spherical equivalent of hyperopic refractive error increases.[6] Strabismus, if left untreated can result in impairment of binocular vision and amblyopia.[7,8] The underlying pathogenic mechanism of strabismus are not fully understood. Various factors have been postulated to play a role in development of strabismus such as family history, gender, prematurity, maternal smoking during pregnancy.[4,9] Ocular factors such as hyperopia, astigmatism, anisometropia have also been postulated to be related to strabismus.[4] Strabismus not only effects a patient clinically but also results in social, psychological and emotional consequences. Therefore, early detection and management of strabismus is important so as to reduce the risk of development of amblyopia in these patients.[5]

METHODS:

A hospital based cross-sectional study was conducted on 3000 patients between 5 to 20 years of age presenting to the Department of Ophthalmology, Government Medical College, Srinagar for a period of three years from August 2019 to August 2021 after obtaining ethical clearance from institutional ethical committee.

Exclusion Criteria:

- Children below 5 years of age and above 20 years of age,
- Children with any associated anterior or posterior segment pathology and
- Children with past history of strabismus corrective procedure.

All the patients were subject to proper ophthalmological examination which included uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA). Visual acuity testing was done using Snellen's chart. Cycloplegic refraction was carried out in these patients. Presence of ocular misalignment was diagnosed by performing cover-uncover test and angle of deviation was measured by prism bar test for both near and distance. Proper anterior segment and fundus examination was also carried out in these patients to exclude any associated anterior and posterior segment pathology.

Statistical analysis of data was done in SPSS version 20.

OBSERVATIONS AND RESULTS:

Among a total of 3000 patients included in the study, only 60 (2%) patients were found to have strabismus. Overall prevalence of strabismus in this study was 2%. Most prevalent form of strabismus in our study was esotropia which was present in 36 (60%) patients followed by exotropia which was present in 24 (40%) patients (Table 1). Dissociated vertical deviation was seen in 12 (20%) patients.

Out of a total of 60 patients with strabismus, 40 (66.7%) were girls and 20 (33.3%) were boys. There were 29 (48.3%) patients in the age group of 5-8 years, 10 (16.7%) patients in the age group of 9-12 years, 12 (20%) patients in the age group of 13-16 years, 9 (15%) patients in the age group of 17-20 years (Table 2).

Table 1: Prevalence Of Esotropia And Exotropia In Study Population

Esotropia		Exotropia		Total	
n	%	n	%	n	%
36	60	24	40	60	100

Table 2: Age Distribution Of Study Population

Age (years)	No. of patients	Percentage (%)
5-8	29	48.3
9-12	10	16.7
13-16	12	20
17-20	9	15

DISCUSSION:

Strabismus basically refers to a condition in which eyes of the individual are not properly aligned thereby resulting in manifest deviation with absence of binocular vision.[10] It can be associated with abnormal motility of one or both eyes, diplopia and abnormal head posture. Misalignment of eyes can be either constant or intermittent.[11,12]

In our study, we found that majority of patients with strabismus belonged to female gender as compared to male gender which is consistent with the studies conducted by Bharathi RL

et al, Abady NH et al and Mohney BG et al.[5,1,13] Overall prevalence of strabismus in our study was 2% which is consistent with the study conducted by Gupta M et al.[14] Studies from South India conducted by Kalikivayi et al and Tarakarameshwara et al have shown a lower prevalence of strabismus[15,16] whereas those conducted by Graham et al and Rantanen et al have shown a higher prevalence of strabismus.[17,18] There is a wide variation in prevalence of strabismus worldwide. These variations can be attributable to the differences in environmental factors, genetic susceptibility and differences in lifestyle in different regions.[19] In our study, the most prevalent form of strabismus was esotropia which is consistent with the studies conducted by Abady NH et al, Akpe BA et al and Tanveer A Chaudhry et al.[1,20,21] However studies conducted by Medghalchi A and Schaal L.F et al have found exotropia to be more prevalent than esotropia.[22,23] One of the reasons for this could be due to difference in races and ethinic background in different regions.[24]

CONCLUSION:

Our study found esotropia to be the most prevalent form of strabismus with overall prevalence of strabismus being 2%. Since most common causes of strabismus are congenital and hereditary, therefore proper ante-natal checkups and early diagnosis and management of strabismus can help in reducing disease burden. Early diagnosis with proper management of these patients will help in reducing the risk of amblyopia in these patients which is a cause of visual morbidity in such cases.

REFERENCES:

1. Abady NH, Al-jumaili AA, Fayyadh RA. (2019), "Association between Strabismus and Refractive Errors among Preschool Children in Fallujah, Iraq." Indian Journal of Public Health Research & Development, 10(5),509-513.
2. Tang, S. M., Chan, R. Y., Bin Lin, S et al. (2016). Refractive Errors and Concomitant Strabismus: A Systematic Review and Meta-analysis. Scientific reports, 6, 35177. https://doi.org/10.1038/srep35177.
3. Fu, J., Li, S. M., Liu, L. R., Li, J. L., Li, S. Y., Zhu, B. D., Li, H., Yang, Z., Li, L., Wang, N. L., & Anyang Childhood Eye Study Group (2014). Prevalence of amblyopia and strabismus in a population of 7th-grade junior high school students in Central China: the Anyang Childhood Eye Study (ACES). Ophthalmic epidemiology, 21(3), 197–203. https://doi.org/10.3109/09286586.2014.904371.
4. Cotter, S. A., Varma, R., Tarczy-Hornoch, K., McKean-Cowdin, R., Lin, J., Wen, G., Wei, J., Borchert, M., Azen, S. P., Torres, M., Tielsch, J. M., Friedman, D. S., Repka, M. X., Katz, J., Ibironke, J., Giordano, L., & Joint Writing Committee for the Multi-Ethnic Pediatric Eye Disease Study and the Baltimore Pediatric Eye Disease Study Groups (2011). Risk factors associated with childhood strabismus: the multi-ethnic pediatric eye disease and Baltimore pediatric eye disease studies. Ophthalmology, 118(11), 2251–2261. https://doi.org/10.1016/j.ophtha.2011.06.032.
5. Bharathi RL, Devi D. (2019), "Prevalence of Strabismus in Children Attending Ophthalmology Out Patient Department in Saveetha Medical College and Hospital." International Journal of Science and Research, 8(11),14-16.
6. Tegegne, M. M., Fekadu, S. A., & Assem, A. S. (2021). Prevalence of Strabismus and Its Associated Factors Among School-Age Children Living in Bahir Dar City: A Community-Based Cross-Sectional Study. Clinical optometry, 13, 103–112. https://doi.org/10.2147/OPTO.S300124.
7. Bez, Y., Coşkun, E., Erol, K., Cingu, A. K., Eren, Z., Topçuoğlu, V., & Ozertürk, Y. (2009). Adult strabismus and social phobia: a case-controlled study. Journal of AAPOS : the official publication of the American Association for Pediatric Ophthalmology and Strabismus, 13(3), 249–252. https://doi.org/10.1016/j.jaapos.2009.02.010.
8. Satterfield, D., Keltner, J. L., & Morrison, T. L. (1993). Psychosocial aspects of strabismus study. Archives of ophthalmology (Chicago, Ill. : 1960), 111(8), 1100–1105. https://doi.org/10.1001/archopht.1993.01090080096024.
9. Multi-ethnic Pediatric Eye Disease Study Group (2008). Prevalence of amblyopia and strabismus in African American and Hispanic children ages 6 to 72 months the multi-ethnic pediatric eye disease study. Ophthalmology, 115(7), 1229–1236.e1. https://doi.org/10.1016/j.ophtha.2007.08.001.
10. Goldstein, H., Henderson, M., Goldberg, I. D., Benitez, E., & Hawkins, C. M. (1967). Perinatal facors associated with strabismus in Negro children. American journal of public health and the nation's health, 57(2), 217–228. https://doi.org/10.2105/ajph.57.2.217.
11. Rutstein RP, Cogen MS, Cotter SA , et al. (2011), "Care of the Patient with Strabismus: Esotropia and Exotropia." In: Rutstein RP (ed). Optometric Clinical Practice Guideline. U.S.A. American Optometric Association, 21-22.
12. Raab EL, Aaby AA, Bloom JN, et al. (2011-2012), "Pediatric ophthalmology and Strabismus." In: Veen B (ed). Basic and clinical science course. 6. San Francisco: American Academy of Ophthalmology, 1-40.
13. Mohney, B. G., Erie, J. C., Hodge, D. O., & Jacobsen, S. J. (1998). Congenital esotropia in Olmsted County, Minnesota. Ophthalmology, 105(5), 846–850. https://doi.org/10.1016/S0161-6420(98)95024-2.
14. Gupta, M., Gupta, B. P., Chauhan, A., & Bhardwaj, A. (2009). Ocular morbidity prevalence among school children in Shimla, Himachal, North India. Indian journal of ophthalmology, 57(2), 133–138. https://doi.org/10.4103/0301-4738.45503.
15. Kalikivayi, V., Naduvilath, T. J., Bansal, A. K., & Dandona, L. (1997). Visual impairment in school children in southern India. Indian journal of ophthalmology, 45(2), 129–134.
16. Attada TR. Deepika M, Laxmi S. (2016), " Strabismus in paediatric age (3-16 year): a clinical study." Int J Res Med Sci, 4,1903-9.
17. Graham P. A. (1974). Epidemiology of strabismus. The British journal of ophthalmology, 58(3), 224–231. https://doi.org/10.1136/bjo.58.3.224.
18. Rutstein RP, Daum KM. (1998), "Anomalies of binocular vision: diagnosis and management". St. Louis: CV Mosby, 192-5.
19. Agaje, B. G., Delelegne, D., Abera, E., Desta, K., Girum, M., Mossie, M., Eshetu, D., & Hirigo, A. T. (2020). Strabismus prevalence and associated factors among pediatric patients in southern Ethiopia: a cross-sectional study. The Journal of international medical research, 48(10), 300060520964339. https://doi.org/10.1177/0300060520964339.
20. Akpe BA, Dawodu OA, Abadom EG. (2014), "Prevalence and pattern of strabismus in primary school pupils in Benin city, Nigeria." Niger J Ophthalmol, 22,38-43.
21. Tanveer A Chaudhry, Aziz Khan, Mohammad Bilal Salman Khan et al. (2009), "Gender differences and delay in presentation of childhood squint." J Pak Med Assoc, 59.
22. Medghalchi A. (2003), "A study on prevalence of horizontal strabismus in patients under 14 years." J Guilan Univ Med Sci, 12(47), 80-85.
23. Schaal L.F. et al. (2016), " The prevalence of strabismus and associated risk factors in a southeastern region of Brazil." Semin Ophthalmol, 14,1-4.
24. Bruce, A., & Santorelli, G. (2016). Prevalence and Risk Factors of Strabismus in a UK Multi-ethnic Birth Cohort. Strabismus, 24(4), 153–160. https://doi.org/10. 1080/ 09273972.2016.1242639.