Abstract:
Refractive errors (RE) is an optical defect that reduces the ordinary imaginative and prescient and is a prime contributor to visual impairment, especially among school youngsters, and most of the time it remains undiagnosed for lengthy intervals leading to visionary disabilities in children. Other condition is strabismus that is when eyes do not pair as depicting misalignment, it seems as if the two eyes are not fixating on the identical region on the equal time.

Objective:
To determine the pattern of refractive errors & strabismus in children.

Methods:
1889 patients were observed, children of age ranging from 1 month to 14 years in Ophthalmology department of Arif Memorial Teaching Hospital, Lahore between the year 2018 to 2019. A self-structure Performa was utilized to gather information. Ocular misalignment was evaluated by cover test and the Hirschberg light reflex. The data was analyzed by SPSS 24.0 (SPSS Inc, Chicago, USA).

Results:
Total 1889 children examined, 18.7% were less than 1 year, 54.7% were between 1 to 4 years, and 26.6% were 4 to 14 years. In those children prevalence of Refractive error was 37.6% in which 18.8% had hypermetropia, 11.2% had astigmatism and 7.6% had myopia. In the data of 1889 patients, 18.7% were less than 1 year in which 79 had strabismus out of which 11.6% are alternating esotropia, 5.4% are alternating exotropia, 4.0% are exotropia, and 1.4% were exotropia. While 54.68% patients were between 1 to 4 years, in which 29.7% had squint. 26.57% patients were between 4 to 14 years, 157 had strabismus. In those patients 13.9% were alternating exotropia, 8.2% were exotropia, 7.4% were alternating exotropia, and 1.8% were exotropia.

Conclusion:
Hypermetropia appears significantly general in the children of age that is less than 1 year. While in strabismus, alternating esotropia is more commonplace in our study, but it does not suggests any significance with age.

Keywords:
Refractive error, strabismus, children
It was observational cross-sectional investigation conducted at the Department of Ophthalmology, Arif Memorial Teaching Hospital after endorsement had been concurred by medical clinic moral survey leading body of Teaching Hospital. 1889 children were selected for examination of age from one month to 14 years who came to the Ophthalmology department. Children of the both genders male and female, were chosen. Patients with other visual pathology, age more than 14 years were excluded. A self-structure Performa was utilized to gather information. Ocular misalignment was evaluated by cover test and the Hirschberg light reflex. Cycloplegic refraction was performed 45 minutes after the utilization of 3 drops of cyclopentolate 1% directed at brief interims in kids matured < 10 years. Refraction was estimated by utilizing streak retinoscopy. Patients having refractive errors were recommended with glasses. The data was analyzed by SPSS 24.0 (SPSS Inc, Chicago, USA).

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**Results:**

In 1889 patients, 1033 (54.7%) were in the range of 1 year to 4 years, 502 (26.6%) were in 4 years to 14 years, and 353 (18.7%) was less than 1 year. 712 (37.6%) had refractive errors in which 356 (18.8%) had hypermetropia, 211 (11.2%) had astigmatism and 144 (7.6%) had myopia. 354 (18.7%) were less than 1 yr. In which ninety three had RE. In those ninety three patients fifty five had hypermetropic, 24 were myopic & 14 had been astigmatic. While 1033 sufferers belonged to at least one to 4 years, in which 394 had refractive errors. In those 394 patients 229 were hypermetropic, 108 were astigmatic & fifty seven have been myopic. 502 patients were among 4 to 14 years, 225 had refractive errors. In the ones sufferers seventy two were
Table 2. Association between Gender of the patient & Type of Strabismus

Discussion:

Refraction is the bending of light rays as it passes from one medium to some other medium with a distinctive density.

A population based totally study examine become accomplished on Singaporean Chinese kids aged 6 to seventy two months. A total of 3009 kids had been examined. They draw that 1375 (forty ve%) have been boys and 1264 (forty two%) were ladies in this study. The usual adjusted prevalence of myopia was 11.0%, 1.4% for hyperopia and 14% for astigmatism.

Another study was performed in number one school youngsters in Al Hassa, Saudi Arabia to evaluate the prevalence and pattern of refractive mistakes amongst them. Of the screened school children (N=2002), 966 (forty eight.3%) patients were male and 1036 (fty one.7%) had been ladies. In these children 870 (43.5%) are between 6 to much less than nine years, 897 (44.8%) are among 9 to much less than 12 years and 235 (11.7%) are between 12 to fourteen years. So consistent with this records 88.3% were within the age institution <12 years even as only eleven.7% had been within the age variety of 12 to fourteen years. In which incidence of refractive errors amongst those youngsters is thirteen.7% (n=274); a hundred and eighty sufferers are myopes, 67 are astigmatic whilst 27 are hyperopes. While in this examine out of 1889 sufferers who’re selected, 1104 (58.4%) are men and 785 (41.6%) are females. Age was

<table>
<thead>
<tr>
<th>Age of the Patient</th>
<th>Type of refractive error</th>
<th>Myopia</th>
<th>Hypermetropia</th>
<th>Astigmatism</th>
<th>Others</th>
<th>Total</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td></td>
<td>24</td>
<td>65 (15.5%)</td>
<td>14 (4.0%)</td>
<td>261 (73.7%)</td>
<td>354</td>
<td></td>
</tr>
<tr>
<td>1 year to 4 years</td>
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<td>57</td>
<td>229 (22.2%)</td>
<td>108 (10.5%)</td>
<td>639 (61.9%)</td>
<td>1033</td>
<td>0.000</td>
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<tr>
<td>4 years to 14 years</td>
<td></td>
<td>64</td>
<td>72 (14.3%)</td>
<td>89 (17.7%)</td>
<td>277 (55.2%)</td>
<td>502</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>145</td>
<td>356 (18.8%)</td>
<td>211 (11.2%)</td>
<td>1177 (62.3%)</td>
<td>1889</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Association between Age of the patient & Type of refractive error

Out of 1889 patients, 28.7% had strabismus. In which 15.1 %, 6.2%, 5.4% and 2% had alternating esotropia, alternating exotropia, esotropia and exotropia respectively

In the collected data of 1889 patients, 354 (18.7%) were much less than 1 year in which seventy nine had stabismus. In which 41 had been alternating esotropia, 19 (54%) have been alternating exotropia, 14 (40%) had been esotropia, five (1.4%) were exotropic. While 1033 (68%) patients belonged to 1 to 4 years, wherein 307 (29.7%) patients had strabismus. In it 174 have been suffering with alternating esotropia, sixty two (6.0%) were alternating exotropia, forty seven (4.5%) have been esotropia, 24 (2.3%) had been exotropic. 502 patients had been between 4 to fourteen years, 157 had strabismus. In the ones patients 70 (13.9%) had been alternating esotropia, forty one (8.2%) were esotropia, 37 (7.4%) had been alternating exotropic, nine (18%) had been exotropia. [p=0.08] (Table.2)
Regarding squint it was concluded 28.7% have strabismus. In which Alternating esotropia, Alternating exotropia, monocular esotropia and monocular exotropia distributed as 0.52: 0.22: 0.19: 0.07. Alternating esotropia is the most unusual kind of squint on this have a look at population. Many exclusive studies are carried out in specific vicinity of the world indicates exceptional outcomes.

Astigmatism (15.05% ≤ 1 year, 27.41% 1 ≥ to ≤ 4 years, 39.5% four ≥ to ≤ 14 years) increases as age increases. Risk of myopia is extra in four to 14 years (4%) and in ≤1 yr (25.80%) compared to 1 to four years (46%). Another have a look at concluded that age has consequences on each refractive mistakes class. The prevalence of myopia and astigmatism in young Singaporean Chinese kids are excessive, but that of hyperopia is low.25

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The consequences of this study take a look at display that relation among types of strabismus and gender of the sufferers (p=0.604) or age of the patients (p=0.08) are non-good sized. A similar have a look at stated that the prevalence of strabismus in children elderly 6 to 72 months was 0.80% (95% CI, 0.51–1.19), with no sex (P = 0.52) or age (P = 0.08) outcomes. Another look at concluded that Strabismus was rare in youngsters 6 thru eleven months, with one in all 167 tested children having strabismus (0.6%). For older youngsters the superiority costs were better; however there was no clean fashion for growing or reducing incidence after age one year. Strabismus changes were similar for boys and women (2.65% and a couple of 57% respectively).28

**Conclusion:**

Hypermetropia is significantly more common in males and highly prevalent in the age group of less than 1 year. While in strabismus, alternating esotropia was more common in current study population but does not shows any significance with age and gender of patients.
References:

01- Strabismus [Internet]. Hospitals.aku.edu. 2020 [cited 4 September 2020].


03- Defence N. Appendix 2 of Annex A - Instruction for Testing Colour Vision - Canada.ca [Internet]. Canada.ca. 2020 [cited 10 September 2020]. Available from:


17- Dunaway D., Berger I. Worldwide distribution of visual refractive errors. Presentation to the International Society for Geographic and Epidemiologic ophthalmology.


19- Al-Tamimi ER, Shakeel A, Yassin SA, Ali SI, Khan UA. A clinic-based study of refractive errors, strabismus, and amblyopia in


23- About the Eye | Fight for Sight [Internet]. Fightforsight.org.uk. 2020 [cited 15 September 2020].


27- [Internet]. Who.int. 2014 [cited 16 September 2020]. Available from: