

Original Research Article

Pediatric ocular disorders in a tertiary care rural hospital of central India (birth to 15 years)

Abstract

Introduction: This study was done to know the pattern of paediatric ocular disorders presenting in outpatient department (OPD) of rural tertiary care hospital of central India.

Methods: A cross sectional study of Pediatric ocular disorder done at UPRIMS and R (Uttar Pradesh Rural Institute of Medical Sciences and Research, Saifai, Etawah) pediatric patients attending the OPD from January 2015 to June 2015. The patients of birth to 15 years of age were included in the study. The patient particulars were noted. The patient name, age, sex, residence, visual acuity, type of refractive errors, mode and type of injury and diagnosis (Allergic Conjunctivitis, Refractive Error, Infective Conjunctivitis, Ocular Trauma, congenital NLD obstruction, Squint, Amblyopia, JOAG, Congenital Glaucoma, Corneal Ulcer, Conjunctival xerosis, Periorbital swelling) was made.

Result: The total number of 848 paediatric ocular disorder patients enrolled in the present study from eye OPD of UPRIMS & R, Saifai, UP from January 2015 to June 2015. The age of pediatric ocular disorder patients ranges from birth to 15 years of age. Out of these 542 patients (63.92%) were male and 306 (36.08%) patients were female. The majority of Pediatric patients (406 children, 47.88%) seen in OPD were of 9-15 years. The most common ocular complaint was allergic conjunctivitis in 277 cases (32.66%, 173 male, 104 female), refractive error is seen in 260 cases (31.37%, 168 male, 92 female), infective conjunctivitis in 73 cases (8.60%, 40 male, 33 female), ocular trauma in 71 cases (8.37%, 50 male, 21 female), congenital nasolacrimal duct obstruction (NLDO) in 53 cases (6.25%, 35 males, 18 female, bilateral in 32 cases and unilateral in 21 cases), squint in 31 cases (3.66%, 23 male, 8 female), amblyopia in 30 cases (3.53%, 15 male, 15 female), Juvenile open angle glaucoma in 10 cases (1.17%, 5 male, 5 female), corneal ulcer in 10 cases (1.17%, 10 male), ocular swelling (with or without tumour) in 25 cases (2.95%, 20 male, 5 female), and conjunctival xerosis (Vitamin A deficiency) in 3 cases

33 (0.35%,3 female), and congenital glaucoma in 5 cases (0.59%, 3 male,2
34 female).

35 **Keywords:** Amblyopia , childhood disorders, ocular trauma, refractive error.

36 INTRODUCTION

37 Pediatric ocular disorder form one of common percentage of Ophthalmological
38 OPD visits[1]. The Pediatric ocular disorders are important challenge not only
39 as a diagnostic or treatment , but it has overall long term effect on the
40 intellectual development, educational development and long pending life span.
41 [1-3].

42 Childhood patients are different from adult patients because they cannot give
43 specific complain about their problems and if ocular problems diagnosis is
44 delayed than it can lead to Amblyopia.[1-3]

45 Most the ocular problems are treatable and hence decreased visual acuity or
46 loss of vision is preventable. But due ignorance, lack of knowledge and careless
47 attitude towards ocular problems in childhood can lead to visual impairment or
48 blindness.[1-3]

49 Childhood blindness is second most common cause in terms of “blind
50 years”. [4] Around the world approximately 70 Million blind years are caused by
51 childhood blindness. Approximately one child become blind every one minute,
52 that is equivalent to 500,000 children every year and point to be noted is that
53 60% of these patients die within 1 or 2 years after becoming blind.[5] The
54 majority of these childrens are from developing countries, amongst 1.5 million
55 childrens who are blind worldwide, 80% belong to Asia and Africa.[6]

56 The different studies done on pediatric ocular problems have shown that eye
57 problems in this group are highly important. A study conducted in Nigeria
58 shown that refractive errors (25.7%), vernal conjunctivitis (25.3%), eye injuries
59 (13.3%), and corneal inflammation (12.5%) were the important cause of
60 paediatric ophthalmology OPD visits.[7] Another study conducted in Tikrit,Iraq
61 allergic conjunctivitis (27%), refractive error (14.6%), ocular trauma (13.8%),
62 infection (12.7%), squint (12.1%) and nasolacrimal duct obstruction (NLDO,
63 5.2%) were the important cause of paediatric ophthalmology OPD visits.[8]
64 Another population based study done in Ethiopia has found that 51.6% cases

65 of pediatric ophthalmology OPD were of active trachoma.[9] But the trachoma
66 trend has decreased drastically even in developing countries after early
67 diagnosis and good availability of drugs for the treatment. Another study done
68 in Ethiopia was conjunctivitis (35%), then ocular trauma(11.8%), refractive
69 error (11.4%) and trachoma (7.6%). Bilateral visual impairment (UCVA < 6/18 in
70 the better eye) was found in 119 children, and the causes were refractive
71 errors (47.1%), keratitis/corneal opacity (16%), amblyopia(14.3%), ocular
72 trauma (11.8%), cataract (6.3%), Glaucoma (2%) and uveitis (2%) cases of visits
73 to paediatric ophthalmological problems in OPD.[2]

74 So, its clear from the above studies that Paediatric ophthalmic disorders
75 prevalence varies in different geographical locations . Knowledge of the
76 prevalence of paediatric disorders is very helpful in organising disease
77 prevention control programme of particular area and also laying down the
78 treatment guidelines of that particular area. The treatment options include
79 correction of refractive error, amblyopia treatment, squint correction,
80 convergence exercises and ocular surgeries.[10]

81 Aim of of our study is to assess the prevalence of paediatric ocular disorders in
82 central India. We tried to find out the prevalence of ocular disorder has any
83 particular variation in relation to sex and different age subgroups. There is no
84 such study done in rural India so far the knowledge of paediatric ocular
85 disorders .

86 **Materials and Methods**

87 A cross sectional study of Pediatric ocular disorder done at UPRIMS and R (
88 Uttar Pradesh Rural Institute of Medical Sciences and Research, Saifai, Etawah)
89 pediatric patients attending the OPD from January 2015 to June 2015. The
90 patients of birth to 15 years of age were included in the study. The patient
91 particular were noted.Refraction was done by the Optometrist. If required
92 cycloplegia was done by homatropine or cyclopentolate.Pupil examined with
93 torch light and anterior segment examination was done by slit lamp.

94 Posterior segment examination was performed after dilating the pupil using
95 90 diopter lens with slit lamp and indirect ophthalmoscope by any of the
96 author or co author. The diagnosis and patient particular noted in the
97 enrolment proforma.The clinical diagnosis classified by any one of these

(Allergic Conjunctivitis, Refractive Error, Infective Conjunctivitis, Ocular Trauma, congenital NLD obstruction, Squint, Amblyopia, JOAG, Congenital Glaucoma, Corneal Ulcer, Conjunctival xerosis, Periorbital swelling)

The patients were stratified into three different age subgroups (<5 years, 6-10 years and 11-15 years). The study follows guidelines of declaration of Helsinki and is started after clearance from ethical clearance from Institutional ethical committee.

RESULTS

The total number of 848 paediatric ocular disorder patients enrolled in the present study from eye OPD of UPRIMS & R, Saifai, UP from January 2015 to June 2015. The age of paediatric ocular disorder patients ranges from birth to 15 years of age. Out of these 542 patients (63.92%) were male and 306 (36.08%) patients were female. The majority of Pediatric patients (406 childrens, 47.88%) seen in OPD were of 9-15 years. The most common ocular complain was allergic conjunctivitis in 277 cases (32.66%, 173 male, 104 female), refractive error is seen in 260 cases (31.37%, 168 male, 92 female), infective conjunctivitis in 73 cases (8.60%, 40 male, 33 female), ocular trauma in 71 cases (8.37%, 50 male, 21 female), congenital nasolacrimal duct obstruction (NLDO) in 53 cases (6.25%, 35 males, 18 female, bilateral in 32 cases and unilateral in 21 cases), squint in 31 cases (3.66%, 23 male, 8 female), amblyopia in 30 cases (3.53%, 15 male, 15 female), Juvenile open angle glaucoma in 10 cases (1.17%, 5 male, 5 female), corneal ulcer in 10 cases (1.17%, 10 male), ocular swelling (with or without tumour) in 25 cases (2.95%, 20 male, 5 female), and conjunctival xerosis (Vitamin A deficiency) in 3 cases (0.35%, 3 female), and congenital glaucoma in 5 cases (0.59%, 3 male, 2 female)

Table 1 and 2 shows tabular representation of results.

Figure 1, 2 and 3 represents bar diagram of different ocular disorders showing comparison in male-female and different age subgroups.

DISCUSSION

The present study was conducted to know the paediatric ocular disorder as its data regarding central Indian population is lacking. It is very important to know the local prevalence of ocular disorder as it is different in different

geographical parts. The importance is further increased as the children are not cooperative for examination , hence it become difficult to diagnose disorders and also children has poor compliance for treatment given.[2]

In our study, 63.92% were male and 36.08% were female. These findings were similar to study done by Sethi S et al [10]at Peshawar, Pakistan where 60.6 male and 39.1% were female [8]. The higher frequency of the ophthalmology OPD visits was seen in age group of 11-15 years (409 patients,48.23 %) that was similar to the study done by Onakpora et al in Nigeria[4].Diseases of conjunctiva was seen commonly in our study (32.66% allergic conjunctivitis , 8.60% infective conjunctivitis) with allergic conjunctivitis is the being the most common ophthalmic diagnosis 32.66% and is followed by refractive errors 31.37%. The cause of higher incidence of allergic conjunctivitis can be because of the tropical climate with long summer weather and low socio economic status of the patients in the population covered by the Institution. Dusty polluted environment, rural living may contribute to development of chronic allergic conjunctivitis.Various studies reported allergic conjunctivitis as the most common ocular disorder.[1-8]. So , it should be emphasised that proper diagnosis and management can shorten the duration of the symptoms and will help in decreasing the loss of school days.

In this study, refractive errors were present in 260 (31.37%) including different types of simple myopia, hypermetropia, astigmatism and compound refractive errors. The most common age group for refractive error was 11-15 years (150 patients, 17.69%). The cause for higher prevalence in 11-15 years age is the ability of this age children to interact and report their problem themselves compare the lower age group.Onakpoya et al [4]reported 14.3%, Sethi et al found 12.7% [10]. So the refractive error is ranging between 12% to 31%, which is comparable to reported in present study. The incidence of refractive error may be under reported as childrens of lower age group are not very cooperative and not aware about their low vision , so they donot come to hospital for examination.

In our study, corneal and sclera diseases accounted for only 9.55% (71 patients ocular trauma, 10 cases corneal ulcer). The most common cause of corneal scar was found to be penetrating ocular injury. The government of India has incorporated Vitamin A prophylaxis programme along with immunisation in

age group of 6 months to 5 years. So there is decreased incidence of Vitamin A deficiency related disorders in India.

In our study, squint was seen in 3.66% (31 patients). In a study done by Sethi et al reported incidence of 8.06% [10]. In a study done in Katmandu, Nepal reported the percentage of squint around 1.6% [12]. Determinants of strabismus diagnosis are important because of the amblyogenic nature of certain concurrent squint [13]. Esotropia is also more likely to be amblyogenic than exotropia [14,15]. The higher incidence of squint (3.66%) can be because of dedicated pediatric ophthalmology clinic in the department in authors hospital.

Vitamin A deficiency signs were seen in 3 children in form of bitot spots (3 children's). The government of India has incorporated Vitamin A prophylaxis programme along with immunisation in age group of 6 months to 5 years. So there is decreased incidence of Vitamin A deficiency related disorders in India. Interestingly all the Vit A deficiency children were female and presented in 11-15 year age group. This represents lack of care to female child in rural India and late reporting due to negligence, low socioeconomic status.

Conclusion

The 3 common causes of paediatric ocular disorder in our study were allergic conjunctivitis, refractive error, infective conjunctivitis and ocular trauma respectively. The importance creating awareness based upon the regional common etiology will help in early diagnosis and prevention of severe visual loss in children by amblyopia and other ocular disorders. Health education will be helpful in preventing ocular trauma in childhood. This study is helpful in diagnosing most common ocular childhood disorders in a particular region and will help in planning any programme for the prevention in the region like Vitamin A supplementation, school health programmes and making treatment guideline on regional basis.

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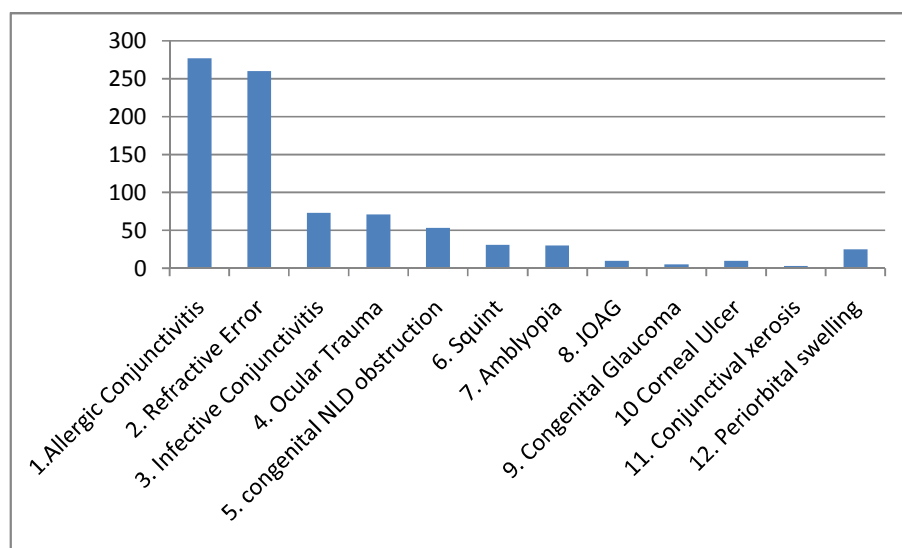
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233

234 **Table 1 . Showing different types of ocular disorders in childrens noted in this study and break up**
 235 **of each between male and female**

	Total cases	% of total cases	Males	Females
1.Allergic Conjunctivitis	277	32.66	173	104
2. Refractive Error	260	31.37	168	92
3. Infective Conjunctivitis	73	8.60	40	33
4. Ocular Trauma	71	8.37	50	21
5. congenital NLD obstruction	53	6.25	35	18
6. Squint	31	3.66	23	8
7. Amblyopia	30	3.53	15	15
8. JOAG	10	1.17	5	5
9. Congenital Glaucoma	5	0.59	3	2
10 Corneal Ulcer	10	1.17	10	0
11. Conjunctivalxerosis	3	0.35	0	3
12. Periorbital swelling	25	2.95	20	5
total	848	100	542	306

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Figure 1 . Bar diagram to show different types of childhood disorders noted in this study.

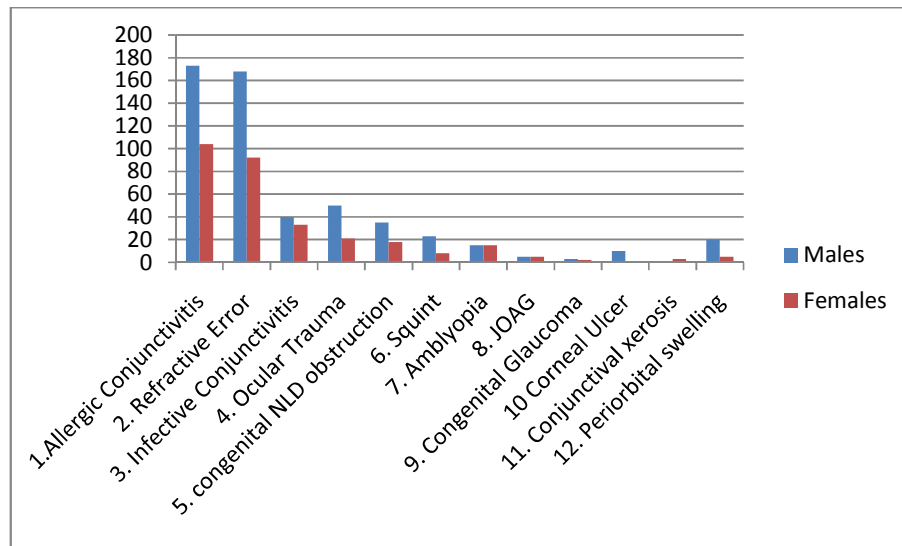
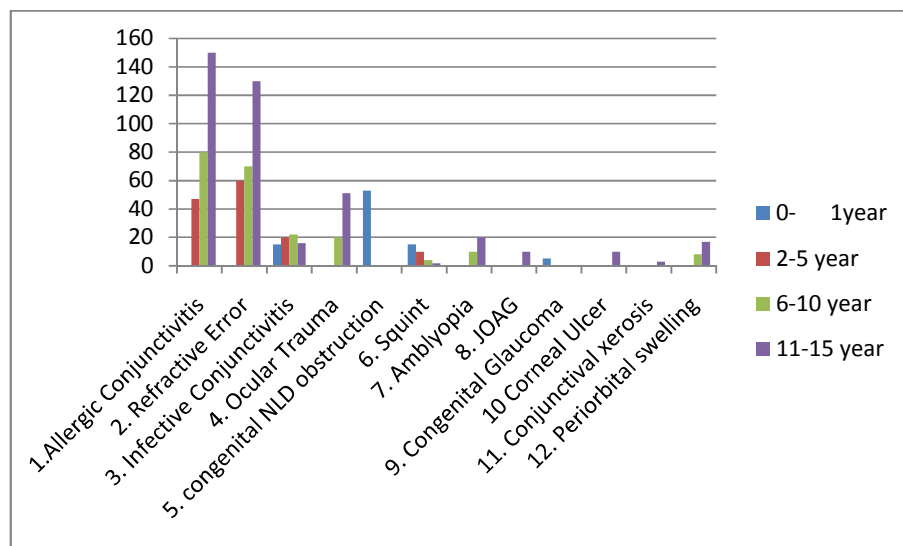


Figure 2 . Bar diagram shows different types of ocular disorders comparison between male and female

Table 2. Shows different types of ocular disorders in childhood in different age groups

Disorder/Age Group	0- 1year	2-5 year	6-10 year	11-15 year	Total cases
1.Allergic Conjunctivitis	0	47	80	150	277
2. Refractive Error	0	60	70	130	260
3. Infective Conjunctivitis	15	20	22	16	73
4. Ocular Trauma	0	0	20	51	71
5. congenital NLD obstruction	53	0	0	0	53
6. Squint	15	10	4	2	31
7. Amblyopia	0	0	10	20	30
8. JOAG	0	0	0	10	10
9. Congenital Glaucoma	5	0	0	0	5
10 Corneal Ulcer	0	0	0	10	10
11. Conjunctivalxerosis	0	0	0	3	3
12. Periorbital swelling	0	0	8	17	25
Total	88	137	214	409	848



246

247 **Figure 3. Bar diagram to represent different types of ocular disorders in different age groups.**

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