

FREQUENCY OF DIFFERENT TYPES OF PAEDIATRIC OCULAR TRAUMA ATTENDING A TERTIARY CARE PAEDIATRIC OPHTHALMOLOGY DEPARTMENT

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ABSTRACT

Objective: To assess the etiological factors and circumstances associated with the occurrence of eye injuries in children attending a tertiary care pediatric ophthalmology department.

Methodology: This study was conducted at the Department of Pediatric Ophthalmology, Civil Hospital, Karachi from August 2007 to July 2009. Personal information, clinical findings and management plan was recorded on a prescribed performa. Variables studied included: age, sex, date of injury, place of injury, involved eye, circumstance and mechanism of injury, initial visual acuity and immediate management.

Results: A total of 462 patients under the age of 16 years presented with ocular trauma. There were 297(64.3%) males and 165(35.7%) females. Mean age was 7.03 ± 3.61 years. Most cases 198 (42.9%) belonged to the schoolgoing age group (6 to 11years). The injuries occurred most frequently at home (215 patients, 46.5%). Blunt trauma occurred in 228(49.4%) cases followed by penetrating in 162(35.1%) cases. Injuries restricted to the eyelid occurred in 61 (13.2%) accidents, closed globe injury occurred in 338 (73.1%) and open globe injury in 63 (13.7%) accidents. Visual acuity was better than 6/12 in 245 (53.0%) children. Two hundred and fifteen children (46.5%) were prescribed only general measures like pressure patching, warm or cold compresses antibiotics or lubricant eye drops. Surgical management was required in 121(26.2%) patients.

Conclusions: This study has shown frequencies of different type of ocular trauma which can be minimized by taking preventive measures as adopted in developed countries.

KEY WORDS: Paediatric Ocular Trauma, Paediatric Ophthalmology.

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INTRODUCTION

Approximately 45 percent of Pakistan's population is under the age of 16 and it is estimated that there are 52,000 children who are blind or visually impaired.¹ In the world population, it has been estimated that there are approximately 1.6 million cases of blindness, 2.3 million cases of low vision and 19 million cases of monocular blindness due to eye injuries.² Ophthalmic trauma is a leading cause of acquired unilateral

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Table-I: Time interval from injury to Hospitalization (n = 462).

<i>Time interval</i>	<i>Frequency</i>	<i>Percent</i>
1-6 hours	141	30.5
7-23 hours	98	21.3
24-5 day	120	25.9
6-10 days	51	11.0
more than 10 days	52	11.3

blindness in childhood,³ being responsible for up to one third of cases of vision loss in the first decade of life.⁴

Paediatric population is more prone to develop amblyopia after trauma if not managed at a proper time.⁵ Such injuries cannot always be prevented, but by identifying underlying factors in their etiology, it may be possible to determine the most effective methods of reducing the incidence of visually damaging trauma.⁶ The characteristics of children at risk, the agents of injury, and the environmental determinants of ocular trauma must be identified so that appropriate preventive measures can be recommended.⁷

The purpose of this study was to determine the frequency of different types of ocular trauma in children in a Paediatric Ophthalmology Unit of a tertiary care hospital.

METHODOLOGY

This study was conducted at the department of Paediatric Ophthalmology, Civil Hospital, Karachi from August 2007 to July 2009. Socio-demographic data, clinical findings and management plan was recorded on a prescribed performa. Variables we studied included: age,

Table-III: Type of Trauma (n = 462).

<i>Type of Trauma</i>	<i>Frequency</i>	<i>Percent</i>
Blunt	228	49.4
Penetrating	162	35.1
Chemical	21	4.5
MVA	9	1.9
Lacerating	42	9.1
Total	462	100.0

Table-II: Site at which injury occurred (n = 462)

<i>Site</i>	<i>Frequency</i>	<i>Percent</i>
Home	215	46.5
Leisure areas	154	33.4
School	78	16.9
Motor vehicles	15	3.2

sex, date of injury, place of injury, involved eye, circumstance and mechanism of injury, initial visual acuity and immediate management.

We categorized age into four groups: infants (under 2 years), preschoolers (from 2 to 6 years), schoolgoing (from 7 to 10 years) and adolescents (from 11 to 16 years old). Data was entered and analyzed on SPSS V-11 for Windows. Data underwent descriptive analyses in the form of frequencies and percentages. We categorized location of injury according to the modified Ocular Trauma Classification Group.⁶

RESULTS

A total of 462 patients presented at the Department of Paediatric Ophthalmology of Dow University of Health Sciences & Civil Hospital, Karachi between August 2007 and July 2009. All the patients were children under 16 years old. There were 297(64.3%) males and 165(35.7%) females. Ages ranged from 5 days to 16 years with a mean of 7.03 (\pm 3.61) years.

Most cases, 198 (42.9.9%) belonged to the school going age group (6 to 11years), followed by preschoolers 165 (35.7%), adolescents 60 (13.0%) and infants 39(8.4%). The interval between accident and the admission to the hospital is shown in Table-I. Two hundred and four (44.1%) patients had already sought another medical service before presentation, and 38 (8.2%) sought help at two or more services, but

Table-IV: Classification of Trauma (n = 462).

<i>Classification</i>	<i>Frequency</i>	<i>Percent</i>
Restricted to the eyelid	61	13.2
Closed globe injuries	338	73.1
Open globe injuries	63	13.7
Total	462	100

generally at hospitals without ophthalmologists. The main cause was trauma by external agents like stone, iron or wood in (28.9%), generally thrown by another child. Accidents with household items and leisure objects were also frequent (21.6% and 16.9% respectively). The injuries occurred most frequently at home (215 patients, 46.5%), followed by leisure area (154 patients, 33.4%), school (78 patients, 16.9%) and road traffic (15 patients, 3.2%). (Table-II) Blunt trauma predominated in this series in 228(49.4%) cases preceded by penetrating in 162(35.1%) cases. Other types of injuries are shown in Table-II.

Diagnostic classification according to the Modified Ocular Trauma Classification Group⁶ is shown in Table-IV. Injuries restricted to the eyelid, occurred in 61 (13.2%) cases, closed globe injury occurred in 338 (73.1%) and open globe injury in 63 (13.7%). Visual acuity was not recorded in 86 (18.6%) children due to young age or illiteracy. Visual acuity was better than 6/120 in 245 (53.0%) children. Two hundred and fifteen children (46.5%) were prescribed only general measures like pressure patching, warm or cold compresses or lubricant eye drops. One hundred and twenty-six patients (27.3%) received medications such as antibiotics, cycloplegics and/or corticoids and were followed-up in the emergency service itself. In one hundred and twenty one patients (26.2%) surgical management was required.

DISCUSSION

Pakistan is a developing country with a birth rate of 27.62 births/1,000 population⁸ (2009 est.). More than half of Pakistan's population is below the age of fifteen; nearly a third is below the age of nine.⁹ As far as children health issues are concerned this situation is the worst in south east Asia.¹⁰ First and foremost step to be taken in this regard is to sort out problems and predisposing factors responsible for this situation. There is no national data about blindness due to ocular trauma, especially in children. Boys tend to be affected by ocular trauma more commonly than girls as evidenced by other studies which agrees with our findings.¹¹⁻¹³ School aged

children are more susceptible than the younger age group as, although they are still relatively immature, these children are slightly more independent which may make them more vulnerable. Location for an injury to take place was found to be at home in 46.5% children.

This was almost exclusively the place for preschool children but was also very common in school children, which reflects both the amount of time that all children spend at home and the risks around the home. Many other studies conducted in past showed the same.¹⁴⁻¹⁶ Many of these risks remain un-recognized as most of the younger age groups were injured by toys or domestic utensils which are found in any home. Participation in sports was the second commonest cause of injury. Sport associated eye trauma is largely preventable by using protective eye wear for a number of sports. In this series, blunt injuries occurred in 49.4 % cases. Children due to blunt trauma admitted because of hyphema in most of the cases. Cause of this blunt trauma was found to be cricket ball, stone thrown by another child, fist and air gun pellets. This trend of ocular injury can be avoided or reduced by using protective eye wear during sports and making legislation not to sell air gun and sharp pointed toys to children.

Previous studies¹⁷⁻¹⁹ and one recent study²⁰ identified that most ocular injuries in children take place in outdoor locations whereas in this study the home, followed by leisure areas, is the most common location for a pediatric ocular injury to take place.

CONCLUSIONS

This study has shown that the most common place for a pediatric eye injury to occur is the home, followed by the leisure areas which could be minimized by increased parental awareness and supervision.

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