OCULAR EMERGENCIES IN KINSHASA (DEMOCRATIC REPUBLIC OF CONGO)

KAIMBO WA KAIMBO D.[1], *SPILEERS W.*[2], *MISSOTTEN L.*[2]

ABSTRACT

Purpose: To determine frequencies of ocular emergencies and identify their nature.

Design: Observational case series.

Methods: In a retrospective study, the records of all 118 consecutive patients seen in emergency room during an eleven-month period were reviewed.

Results: Ocular emergencies represented 4% of the 2917 new patients visiting the department of Ophthalmology during this time. There was a 2.1/1 male to female preponderance and a peak age of presentation between 11 and 30 years. The mean age was 26 years ±17. Ocular trauma (68 patients) accounted for over two-fourths (57.6%) of the total cases. Only 16% of patients presented within 48 hours. Fifty-one percent of injuries occurred to the left eye, 38% to the right, and 10% bilaterally. The commonest ocular injury problems were eyelid laceration (13 patients, 19.1%), post-traumatic iritis (12 patients, 17.6%), and corneal laceration and penetration (10 patients, 14.7%), accounting for 51% (35 patients) of the total. Home- and work-related ocular injuries accounted for 54% of all ocular injuries. Thirty-three percent of all ocular injuries were caused by assault and fight, and 15% were related to motor vehicle accident. For the non-traumatic ocular emergencies, the main aetiological factor was inflammation (18%).

Conclusion: Our study showed that males account for the majority of eye injuries and this class is more prone to assault-related injuries. In our country prevention strategies must take account of these.

.....

[1] *Department of Ophthalmology, University of Kinshasa.*
[2] *Department of Ophthalmology, Catholic University of Leuven.*

received: 08.01.02
accepted: 26.04.02

RÉSUMÉ

But: Déterminer la fréquence des urgences en ophtalmologie ainsi que leur nature.

Méthodes: Une étude rétrospective est réalisée à partir des dossiers de 118 patients reçus en urgence durant une période de 11 mois.

Résultats: Les urgences représentent 4% de tous les 2917 nouveaux malades reçus durant cette période. L'âge moyen des patients est de 26 ans ±17 avec un sex ratio de 2,1:1 en faveur de l'homme et un pic entre 11 et 30 ans. Les urgences traumatiques et non traumatiques ont été retrouvées respectivement chez 68 patients (58%) et 50 patients (42%). Seulement 16% des patients se sont présentés dans les 48 heures. L'oeil gauche a été atteint dans 51%, l'œil droit dans 38% et l'atteinte bilatérale a été de 10% des cas. Ce sont les lacérations palpébrales (13 patients; 19,1%), les iritis post-traumatiques (12 patients; 17,6%) et les plaies et lacérations cornéennes (10 patients; 14,7%) qui constituent les urgences traumatiques les plus fréquentes (soit un total de 35 patients; 51%). La plupart des traumatismes sont domestiques et ont été occasionnés par des agressions et bagarres. Pour les 50 urgences non traumatiques, ce sont les atteintes infectieuses et inflammatoires qui sont les plus fréquentes (18%).

Conclusion: Cette étude montre que les urgences traumatiques concernent plus le patient du sexe masculin et que celui-ci est l'objet d'agressions et bagarres. Les stratégies de prévention doivent en tenir compte.

KEY-WORDS

Ocular emergency. Ocular injury. Democratic Republic of Congo.

MOTS-CLÉS

Urgence ophtalmologique. Traumatisme oculaire. République Démocratique du Congo.

INTRODUCTION

Studies describing ocular diseases from the emergency service of a department of ophthalmology are well known and have been reported all over the world [2,4,5,9,16,19,21,22]. However, limited information is available in Africa about the epidemiology of ophthalmic emergencies. The goals of this study are to (1) describe, in a retrospective study, the frequency of ocular traumas from patients seen in the emergency room, (2) identify the nature of the ocular injuries and diseases. Such information could be important in the management and planning strategies for prevention and protection of persons with such traumas.

METHODS

We analyzed the clinical records of all consecutive patients with ocular traumas seen in the emergency room between 6/85 - 1/86, and 1/89 - 5/89 (eleven-month period) at the department of Ophthalmology, University of Kinshasa. All patients received a full ophthalmologic examination, including measurement of visual acuity, inspection of adnexa, refraction, slit lamp examination, direct ophthalmoscopy, and measurement of intraocular pressure.

The following information was recorded from each patient: age and sex, time to presentation (days), eye involvement, activity at the time of injury, type of injury, diagnosis. When a patient had more than one diagnosis, only the most serious one was listed. For example, if a patient suffered hyphaema and retinal detachment, only the retinal detachment was recorded. Activity at the time of injury was classified as follows: home (domestic), workplace, street/highway, school/daycare, other and unspecified.

RESULTS

A total of 118 patients were seen, which represents 4% (118 out of 2917 patients) of all patients for that eleven-month period. The mean age of patients was 26 years ±17. Forty-three percent of patients were between the ages of 11 and 30 years and 69% of patients were males (Table 1).

Table 1: *Characteristics of patients*

Variables	Ocular injury	Non-injury disease	Total
N	68	50	118
Frequency (%)	2.3	1.7	4
Age			
Group age (years)			
0-10	13	10	25 (25)
11-20	13	9	21 (18)
21-30	20	11	30 (25)
31-40	8	7	16 (14)
41-50	9	7	15 (13)
> 50	5	6	11 (9)
Mean age±SD (range, years)	25.5±15 (2 to 67)	27.6 ±15 (0.06 to 67)	26 ±17 (0.06 to 67)
Gender			$P = 0.033$
Male	52	29	81
Female	16	21	37
Total	68	50	118
Eye involvement			$P = 0.0016$
Bilateral	7	17	
Unilateral			
Right eye	26	18	
Left eye	35	15	
Time to presentation (days)			$P = 0.00135$
1 - 2	18	1	19
3 or more	17	23	40
Unspecified	33	26	59

Of 118 patients, 68 (57.6%) had a clinical diagnosis of ocular trauma, which represents 2.3% of all patients for that eleven-month period. The average age of patients with eye injury was 26 years ±15.

Compared with non-trauma cases, trauma cases were more likely to be male ($P = 0.033$). Trauma cases generally presented earlier ($P = 0.00135$) (twenty-nine percent of all patients with ocular injury presented within 48 hours of their injury) and were more likely to have unilateral eye involvement ($P=0.0016$) (Table 1). Fifty-one percent of injuries occurred to the left eye, 38% to the right, and 10% bilaterally. Eyelid laceration, post-traumatic iritis, and corneal laceration and penetration were the most common diagnoses (Table 2).

Of all injuries, 44% occurred at home, 10% took place at work, and 16% happened in un-

Table 2: *The most common ocular injuries*

Diagnosis	No. Patients	Eyes
• Eyelid laceration	13	14
• Iritis	12	13
• Corneal laceration/penetrating injury	10	10
• Subconjunctival hemorrhage	4	4
• Corneal abrasion (erosion)	4	4
• Corneal foreign body	3	4
• Conjunctival laceration	3	3
• Eyelid edema	3	3
• Conjunctivitis	2	3
• Hyphema	2	2
• Others*	12	15
Total	68	75

* Others (Corneal burn, eyelid foreign body, conjunctival emphysema, blow-out fracture, papilledema, retinal detachment, rupture of the globe, contusion of the globe, secondary glaucoma, endophthalmitis, toxic keratoconjunctivitis, vitreous hemorrhage).

Table 3: *Location of ocular injury*

Location of injury	No. of patients	%
• Home	30	44
• Street/highway	12	18
• Workplace	7	10
• Other	5	7
• School/daycare	3	5
• Unspecified	11	16
Total	68	100

Table 4: *Detailed classification of traumatic origin*

Origin of injury	No. of patients	Eyes
• Assault	16	18
• Foreign body	11	14
• Motor vehicle accident	10	11
• Fight	6	6
• Acid/alkali/thermal/chemical	6	7
• Struck accidentally by object	2	2
• Unspecified	17	17
Total	68	75

specified and unknown locations (Table 3). Thirty-three percent of all ocular injuries were caused by assault and fight, and 15% were related to motor vehicle accident (Table 4).

There were 50 patients with non-traumatic ocular diseases. Among the non-traumatic related conditions, acute and inflammatory conditions were the most common group of diagnoses (with 18 patients, 36%) (Table 5).

Table 5: *The most common non-traumatic diseases*

Diagnosis	No. of patients	Eyes
• Iritis	5	6
• Corneal ulcer	5	5
• Orbital cellulitis	5	5
• Secondary glaucoma	4	5
• Orbital tumor	4	4
• Papilloedema	3	6
• Conjunctivitis	3	5
• Retinal detachment	2	3
• Retinitis	2	4
• Dacryocystitis	2	2

DISCUSSION

Our study showed that ocular emergencies represented 4% of the 2917 new patients visiting the department of Ophthalmology during this time. There was a 2.1/1 male to female preponderance and a peak age of presentation between 11 and 30 years. Ocular trauma (68 patients) accounted for almost 57.6% of the total cases. Only 16% of patients presented within 48 hours. The commonest ocular injury problems were eyelid laceration, post-traumatic iritis, and corneal laceration and penetration (35 patients), accounting for 51% of all cases. Home- and work-related ocular injuries accounted for 54% of all ocular injuries. Thirty-three percent of all ocular injuries were caused by assault and fight, and 15% were related to motor vehicle accident. For non-ocular injury, the main aetiological factor was inflammation (18%).

Our results are consistent with other studies which have provided data concerning ophthalmic emergencies [4,5,16,19,22].

Edwards [5], in a survey of ophthalmic emergencies attending the casualty department of a district general hospital over a 12-month period, reported a frequency of 6.1% (The total number of new casualty attendances was 30649 of which 1870 presented with an ophthalmic problem in USA). In his study, there was a 3 to 1 male to female preponderance and a peak

age of presentation between 20 and 30 years. The main aetiological factors were trauma (65.6%) and inflammation (21.7%). In the study of Ducasse et al [4] in France, ocular trauma represented 39.4% of cases (226 out of 574 patients) with a 4 to1 male to female preponderance. Foreign body (91 cases, 40.3%) and contusion (82 cases, 36.2%) were the common diagnoses. Inflammatory diseases represented non ocular trauma cases (100%).

Nash and Margo in USA [16], in a National Hospital Ambulatory Medical care Survey (used to obtain information on emergency department visits in the United States for conditions of the eye and ocular adnexa in 1993), retrospectively found that eye and ocular adnexal injuries accounted for 1.3% of all emergency departments visits in 1993. They also found that forty-nine percent of the visits were for injuries, two thirds of which occurred in males. Thirty-five percent of injuries occurred at home and 18% occurred in the workplace.

Tsai et al [19], in a retrospective analysis review of 1,314 consecutive patients who presented with eye complaints to the emergency department of a medical center over a 12-month period in Taiwan, reported a male to female ratio of about 1.9:1 with a peak age in the third decade. Diagnoses were grouped as trauma (43.8%) and non-trauma (56.2%). They found that corneal abrasion was the most common trauma reported, and the main circumstances of eye trauma in their study were play (50.0%) in children ($<$ 15 years), work (37.1%) in the age group of 16 to 59 years and domestic activity (45.8%) in patients over 60 years of age. Blunt objects and contusions (hits of falls) caused nearly 50% of all ocular injury cases. Most of the non-traumatic cases were due to acute conjunctivitis (19.1%), followed by contact lens-related disorders (11.4%).

Voon and Wong recently [22] conducted a prospective survey over a 3 month period from the emergency service of a large tertiary hospital in Singapore. They found that trauma cases represented 52.9% of all cases. They also demonstrated that trauma cases compared with non-trauma cases were more likely to be male and younger than 40 years of age. In their study, the three most common types of injuries were superficial foreign body (52%), corneal abrasion (24.9%) and blunt trauma (12.6%), while open globe injury occurred in only 17 cases (2%). Work-related injuries accounted for 590 (71.4%) cases, where grinding, cutting metal and drilling were the specific activities in more than 90% of the cases.

Our results in this study therefore confirmed the universal pattern that ocular trauma occurred in young adult males [1,3,6,7,8,10-15,17,18,20,24]. The higher risk in young men is probably related to the more aggressive/assaultive behavior in men [23].

In this study, fifty-one percent of injuries occurred to the left eye, 39% to the right and 10% bilaterally. As stated by Zagelbaum et al [24] an attacker would use his/her dominant hand, which is most commonly the right hand, to strike a victim's left eye; therefore, this may account for the increased number of injuries to the left eye.

Home-related injuries were the most important source of ocular injuries in our study accounting for 44%. The high level of unemployment in our patient population probably plays a role in this finding [24].

In our study, 29% of patients with ocular injury presented within 48 hours and only 16% of all 118 patients presented within 48 hours whereas the time of presentation for most patients in other previous studies is within 24 hours [4,5,16,19,22]. Educating the general public is essential to ensure rapid treatment or management if we wish to prevent eye injury complications.

We conclude from our study that (1) males account for the majority of eye injuries incurred; (2) this class is more prone to assault-related injuries. Strategies for prevention must take account of these findings in our country.

REFERENCES

(1) BLOMDAHL S., NORELL S. – Perforating eye injury in the Stockholm population. Acta Ophthalmol 1984; 62:378-390.

(2) CHIAPELLA A.P., ROSENTHAL A.R. – One year in an eye casualty clinic. Br J Ophthalmol 1985; 69:865-870.
(3) DESAI P., MacEWEN C.J., BAINES P., MINASSIAN D.C. – Incidence of cases of ocular trauma admitted to hospital and incidence of blinding outcome. Br J Ophthalmol 1996; 80:592-596.
(4) DUCASSE A., GALICHET E., MATHOT E., FAVRE F., SEGAL A. – Les urgences en ophtalmologie. Aspect épidémiologique sur 3 mois. Bull Soc Ophtalmol Fr 1988; 88:1011-1016.
(5) EDWARDS R.S. – Ophthalmic emergencies in a district general hospital casualty department. Br J Ophthalmol 1987; 71:938-942.
(6) FONG L.P. – Eye injuries in Victoria. Australia. Med J Aust 1995; 162:64-68.
(7) GLYNN R.J., SEDDON J.M., BERLIN B.M. – The incidence of eye injuries in New England adults. Arch Ophthalmol 1988; 106:785-789.
(8) GOTHWAL V.K., ADOLPH S., JALALI S., NADUVILATH T.J. – Demography and prognostic factors of ocular injuries in South India. Aust N Z J Ophthalmol 1999; 27:318-325.
(9) JONES N.P., HAYWARD J.M., KHAW P.T., CLAOUÉ C.M.P., ELKINTON A.R. – Function of an ophthalmic accident and emergency department. Results of a six month survey. Br Med J 1986; 292:188-190.
(10) KAIMBO D.K., MULEYA J.I., LUBEJI D.K. – Traumatic hyphema caused by contusion in Zaire. J Fr Ophtalmol 1995; 18:114-119.
(11) KARLSON T.A., KLEIN B.E.K. – The incidence of acute hospital-treated eye injuries. Arch Ophthalmol 1986; 104:1473-1476.
(12) KATZ J., TIELSCH J.M. – Lifetime prevalence of ocular injuries from the Baltimore Eye Survey. Arch Ophthalmol 1986; 111:1564-1568.
(13) KLOPFER J., TIELSCH J.M., VITALE S., SEE L.C., CANNER J.K. – Ocular trauma in the United States: eye injuries resulting in hospitalization, 1984 through 1987. Arch Ophthalmol 1992; 110:838-842.
(14) MacEWEN C.J. – Eye injuries: a prospective survey of 5671 cases. Br J Ophthalmol 1989; 73:888-894.
(15) McCARTY C.A., FU C.L., TAYLOR H.R. – Epidemiology of ocular trauma in Australia. Ophthalmology 1999; 106:1847-1852.
(16) NASH E.A., MARGO C.E. – Patterns of emergency department visits for disorders of the eye and ocular adnexa. Arch Ophthalmol 1998; 116:1222-1226.
(17) SCHEIN O.D., HIBBERD P.L., SHINGLETON B.J., et. al. – The spectrum and burden of ocular injury. Ophthalmology 1988; 95:300-305.
(18) TIELSCH J.M., PARVER L., SHANKAR B. – Time trends in the incidence of hospitalized ocular trauma. Arch Ophthalmol 1989; 107:519-523.
(19) TSAI C.C., KAU H.C., KAO S.C., LIU J.H. – A review of ocular emergencies in a Taiwanese medical center. Chung Hua I Hsueh Tsa Chih (Tapei) 1998; 61:414-420.
(20) VERMA N., VERMA A., JACOB G., DEMOK S. – Profile of ocular trauma in Papua New Guinea. Aust NZ J Ophthalmol 1997; 25:151-155.
(21) VERNON S.A. – Analysis of all new cases seen in a busy regional centre of an ophthalmic casualty department during a 24 week period. J R Soc Med 1983; 76:279-282.
(22) VOON L.W., SEE J., WONG T.Y. – The epidemiology of ocular trauma in Singapore: perspective from the emergency service of a large tertiary hospital. Eye 2001; 15:75-81.
(23) WONG T.Y., TIELSCH J.M. – Epidemiology of ocular trauma. In: Tasman W, Jaeger EA, editors. Duane's foundations of clinical ophthalmology, vol 5. Philadelphia: JB Lippincott, 1998: 65,1-56.
(24) ZAGELBAUM B.M., TOSTANOSKI J.R., KERNER D.J., HERSH P.S. – Urban eye trauma: a one-year prospective study. Ophthalmology 1993; 100:851-856.

.....

Correspondence:
Prof. Kaimbo Wa Kaimbo D.
BP 16540
Kinshasa 1
République Démocratique du Congo
E-mail: kaimbo@raga.net