

Emergencies Diseases in Ophthalmology: Epidemiological and Clinical Study about 547 Cases Recorded at the Ophthalmologic Department of University Hospital of Treichville (Abidjan-Ivory Coast)

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Abstract

Introduction: Ophthalmological emergencies are frequent reasons for consultation. They can be severe in the absence of adequate and early management. In the Ivory Coast, we are faced with a shortage of ophthalmologists and a lack of equipment in our health centers.

Aims: To establish the epidemiological and clinical profile of ophthalmic emergencies at the University Hospital of Treichville.

Materials and Methods: The authors carried out a cross-sectional and descriptive study over a 10-month period in the Ophthalmology Department of the University Hospital of Treichville. All patients with ophthalmological emergencies were included. The epidemiological and clinical features were studied.

Results: The study involved 547 patients with a male predominance of 51% (sex ratio = 1.05). The average age was 29 years. The average time for consultation was about 7 days. Ocular trauma was found in 145 cases (24, 68%) of ophthalmological emergencies. Infectious and/or inflammatory pathologies of the anterior segment with 294 cases (71.36%) predominated in non-traumatic emergencies.

Conclusion: Ophthalmological emergencies were relatively common. The lesions found were traumatic and non-traumatic. All structures of the eyeball were concerned. The nature of the emergency, the site of the initial lesion as well as the delay in management affects the functional prognosis. Awareness of the authorities and the population remains necessary for prevention and management in adequate conditions.

Keywords: *Ophthalmology; Emergencies; Eye; Traumatic Emergencies; Non-Traumatic Emergencies; Inflammation; Management*

Introduction

Ophthalmological emergencies are defined as an ocular and/or adnexal condition experienced by the patient and requiring rapid management, in order to avoid blindness. They are divided into traumatic and non-traumatic emergencies. There is no "gold standard" to define emergency, and the emergency feeling of the patient may be different from that of the ophthalmologist.

The shortage of specialized centers for their management and an irrational distribution of ophthalmologists in our context can delay the management, jeopardizing the visual prognosis.

The aim of this study was to establish the epidemiological and clinical features of urgent ophthalmological conditions in order to propose ways to improve their management in our hospital practice.

Material and Methods

A cross-sectional and descriptive study was carried out over a 10 month-period, involving 547 patients who consulted between September 2015 and June 2016 in the department of ophthalmology at the University Hospital of Treichville.

All patients presenting to the ophthalmology department for an ophthalmological emergency as defined above were included in the study.

The following parameters were studied: gender, age, consultation period, laterality, clinical feature, topography of the anatomical structure, and therapeutic modalities.

A complete ophthalmological examination was performed in all patients. Paraclinical assessments were carried out according to the urgency. During the first 5 months of the study, the ophthalmology department was in renovation, thus limiting the number of consultations.

Chronic conditions were not included in the study, and patients coming for a check were not retained for the study.

Results

Epidemiological data

Frequency

The ophthalmological emergencies recorded over a 10 month-period involved 547 patients out of a total of 1825 patients seen in consultation in the ophthalmology department, that is 30% of the number or 1/3 of consultants. This proportion accounted for 6% of the total number of emergencies registered at the University Hospital of Treichville for a total of 9200 patients who consulted for the same period.

Ophthalmological emergencies are divided into traumatic and non-traumatic emergencies:

Traumatic emergency	135	24.68%
Non-traumatic emergency	412	75.32%
Total	547	100%

Table 1: Distribution of patients according to the type of emergency.

Gender and Age

There is a male predominance of 279 patients that is 51% with a sex ratio of 1.05. The majority of subjects are young with an average age of 29 years. 232 patients had an age ranging between 16 and 60 years that is 42.41% of the total number.

Age groups	Number	Percentage (%)
< 16 years	183	33.46
16 - 60 years	232	42.41
> 60 years	132	24.13
Total	547	100

Table 2: Distribution of Patients according to the age group.

Consultation period

11.70% of patients were seen within 24 hours. In 44.97% of cases consultation took place after 72 hours up to 2 weeks of onset of symptomatology.

Consultation period n	Number	Percentage (%)
< 24 h	64	11.70
1 - 3 days	129	23.58
4 - 7 days	150	27.42
7 - 14 days	96	17.55
15 - 30 days	55	10.05
> 30 days	53	9.69
Total	547	100

Table 3: Distribution of Patients according to the consultation period.

Clinical study

Traumatic Emergencies

They are dominated by open-globe trauma (OGT) with 48.9%, isolated or associated with adnexal involvement, and including corneal, scleral or sclerocorneal wounds. Closed-globe trauma (CGT) is dominated by contusions of the globe with as lesion corneal edema, hyphema, post-traumatic cataract, intravitreal hemorrhage and accounted for 33.3% of lesions.

OGT Trauma	66	48.9%
CGT	45	33.3%
Adnexal Trauma	24	17.8%

Table 4a: Distribution according to the type of trauma.

Type of trauma	Lesions	Number	Percentage (%)
OGT	Corneal wound	24	17.78
	Scleral wound	12	8.89
	Corneal and scleral wound	20	14.81
	Bursting of the eyeball	10	7.40
CGT	Corneal edema	8	5.92
	Corneal erosion or ulceration	11	8.14
	Hyphema	14	10.37
	Cataract	6	4.44
	Intravitreal hemorrhage	6	4.44
Adnexal trauma	Palpebral laceration	6	4.44
	Palpebral wound	12	8.89
	Lacrymal wound	4	2.96
	Palpebral burns	2	1.48
Total		135	100

Table 4b: Distribution according to traumatic lesions.

Non-traumatic emergencies

Pathologies of the anterior segment dominated non-traumatic emergencies with 294 cases out of 412 that is 71.36%. Lesions of the

posterior segment and appendages were recorded in 67 cases (16.26%) and 51 cases (12.38%) respectively. Inflammatory or infectious lesions predominated in our study whatever the anatomical topography, 343 cases that is 83.25%.

Pathologies of the anterior segment	294	100%
Infectious and inflammatory	277	94.21%
Acute conjunctivitis	141	47.96%
Keratitis and corneal ulcer	70	23.80%
Corneal abscess	13	4.42%
Anterior uveitis	24	8.16%
Episcleritis	4	1.36%
Endophthalmitis	25	8.50%
Ocular hypertonia	5	1.70%
Intravitreal hemorrhage	3	1.02%
Acute glaucoma	7	2.38%
Phacolytic glaucoma	2	0.68%

Table 5: Distribution of non-traumatic pathologies according to the involvement of the anterior segment.

The inflammatory and infectious involvement of the anterior segment predominate with 277 patients that is 94.2%, with 141 subjects (47.96%) followed by corneal affections with 83 patients (28.22%).

Pathologies of the posterior segment	67	100%
Posterior uveitis +/- macular involvement	24	35.82%
Macular edema	4	5.97%
Papillary edema	10	14.93%
Vascular (OVCR, OACR)	8	11.94%
Retinal detachment	6	8.95%
Neuro-ophthalmological disorders	10	14.93%
Retinal tumor	5	7.46%

Table 6: Distribution of non-traumatic pathologies according to the involvement of the posterior segment.

Disorders of the Posterior pole were dominated by posterior uveitis with 24 cases that is 35.82%, followed by papillary and / or macular edema, 14 cases (20.9%); neuro-ophthalmological disorders in 10 cases (14.93%), vascular pathologies were recorded only in 8 cases (11.94%), as well as retinal detachments 6 cases (8.95%), tumor lesions 5 cases (7.46%).

Pathologies of adnexa	51	100%
Acute blepharitis	18	35.29%
Inflammatory chalazion	19	37.25%
Orbital cellulitis	5	9.80%
Oculomotor paralysis	6	11.77%
Ptosis	3	5.88%

Table 7: Distribution of non-traumatic pathologies of adnexa.

Adnexal pathologies are dominated by inflammatory chalazions 19 cases (37.25%), followed by acute blepharitis 18 cases (35.25%). Orbital cellulitis was only recorded in 5 cases (9.80%).

Discussion

The definition of emergency is not consensual. A standardization of the definition would allow a better recruitment of patients. In our study, emergencies were divided according to whether they occur in a traumatic context or not and on the other hand according to the anatomical structure involved. Girard classified emergencies in medical and traumatic pathologies [1].

Epidemiological and clinical features

Frequency

The hospital frequency of ophthalmological emergencies was 30% that is approximately one-third of consultants, which corresponds to 6.18% of all emergencies at the University Hospital of Treichville.

In Great Britain, ophthalmological emergencies were estimated to be 2.6 per 1000 inhabitants [2] and 4% in Congo [3]. The difference between the series would not only be due to the non-unanimous definition of emergency among authors but also to the mode of recruitment of patients. These studies were for some retrospective and for others prospective like ours. Moreover, the fact that the recruitment of our patients took place half of the time during the renovation of our service led to a redirecting of patients towards other structures of the capital city.

Age

Patients' average age was 29 years and the age group of 16 - 60 years was the most represented (42.41%). Kaimbo in Congo found an average age of 26 years [3]. For Girard, the age group of 35 to 41 was predominant [1]. Thus, a predominance of young adults is found in almost all series. This could be explained by the fact that it is a more exposed population.

Gender

The predominance of the male gender was noted in many series [1,3-5,8]. This is explained by the fact that men are more involved in activities at risk than women.

Consultation period

Consultation was late in our study; 354 patients that is 69.14% consulted after the first 72 hours. There is a peak frequency of consultation between the 4th and 7th days. The same observation was made by Kaimbo who observed that nearly 80% of 118 patients came to consult after 48 hours. This delay in consultation would be related to the ignorance of the populations who first resort to self-medication and who consulted only in case of failure with aggravation of the clinical picture. The second explanation could be due to a shortage of ophthalmologists in peripheral health centers and financial difficulties due to the lack of universal medical coverage as in the developed countries where the majority of patients are seen within the first 24 hours [1].

Traumatic emergencies

Trauma accounted for 24.68% (135 cases) of emergencies in our study. There are larger numbers in Tchabi at the rate of 70.8% (463 cases) out of a total of 654 patients [4], when Akinsola in Nigeria obtained 56% of emergencies of traumatic origin [5]. Girard's study in France showed a frequency close to 60% [1].

The difference in frequency could be explained by the choice of sampling, duration and the retrospective or prospective nature of the study. Thus, the study of Tchabi was mainly concerned with ocular trauma [4]. For our part, the concept of emergency was not restrictive and met the criteria accepted after a preliminary investigation with ophthalmologists.

In our study, ocular wounds may or may not be associated with adnexal lesions in 66 cases that is 48.89%. We have recorded 45 cases of closed-globe trauma that is 33.33%. For Onakpoyo, the incidence of open-globe trauma was 26 cases that is 4.1%, while closed-globe

trauma was 85.9% among a population over 65 years of age [12]. The frequency of traumatic emergencies remains quite variable in the literature [5,7-9] and the comparison of results remains difficult because of the choice of the sample.

The circumstances of trauma were dominated by domestic accidents and road accidents in the adult subject, while recreational accidents were the prerogative of children. Mixed trauma involving both the eyeball and the appendages occurred under severe shock conditions in a poly-trauma context. According to Meda in Burkina Faso, accidents due to two-wheeled vehicles are frequently involved in poly-trauma, because of the non-application of road safety rules [8].

Non-traumatic emergencies

Most of the emergencies in our series were non-traumatic (75.32%). Lower frequencies were recorded in other studies 40%, 49%, 52% [1,6,11]. The notion of non-traumatic ophthalmological emergency is still not well perceived not only by patients, but also by practitioners especially in the presence of a white eye, painless with or without a decrease in visual acuity. The absence of consensus in the definition of emergency could contribute to an underestimation of their frequency. A survey conducted among practitioners in ophthalmology on the notion of emergency in the two main university hospitals in Abidjan allowed a better appreciation as for the definition of emergency. The consensual definition of emergency would be any ocular and/or adnexal pathology, with a red eye or not, more or less painful being associated with a decrease in visual acuity, felt by the patient and requiring rapid management.

Among non-traumatic urgent conditions, the most common topography was the anterior segment with 294 cases (71.36%) with acute conjunctivitis 141 cases (47.96%) considered as the most common condition followed by keratitis 83 cases (28, 22%). Pathologies of the posterior segment were recorded in 67 cases (16.26%). Adnexal lesions were found only in 51 cases (12.38%). In non-traumatic emergencies, inflammatory and infectious etiologies represented 343 cases (83.25%). They represented 277 cases (94.21%) of anterior segment involvement, 24 cases (35.82%) of pathologies of the posterior segment. In Girard's study, infectious and inflammatory disorders accounted for 28.5% of non-traumatic medical emergencies. For Bhopal, they would be 60% [2]. This disparity would be due to the recruitment bias and to the accessibility to diagnostic scanning means. Girard notes 23 non-traumatic pathologies of ophthalmological emergency corresponding to 95% of patients whereas Bhopal notes 10 disorders found in 70% of his study population [2].

Therapeutic Features

According to the indication and the modalities of management, ophthalmological emergencies were divided into surgical emergencies and medical emergencies.

Our medical emergencies accounted for 75.32% versus 24.68% for surgical emergencies.

All patients with medical ophthalmological emergencies had received adequate outpatient treatment.

Out of the 88 patients requiring surgical management, only 62 actually benefited from a surgical intervention that is 70.45%. This surgical management could not be carried out or was delayed in 29.6% of patients for two main reasons: the unavailability of the operating room for general anesthesia on the day of the trauma and the unavailability of adequate equipment for a rapid management. The inadequacy of the technical platform has been noted in other studies [7]. The medical level and equipment of emergency units in developed countries have allowed better management of emergencies in ophthalmology as evidenced by Jeanmin's study [13].

Conclusion

Ophthalmological emergencies quickly involve the visual functional prognosis of patients. The shortage of ophthalmologists and lack of equipped centers further aggravate this prognosis. However, an improvement in the training of health care workers in ophthalmology could improve the management of ophthalmological emergencies. Patients' information and awareness about trauma and road safety measures would reduce the incidence of ocular trauma related to brawls, assaults and road accidents. Public authorities and decision-makers should work towards the implementation of the universal health coverage for all and the equipment emergency units.

Conflicts of Interest

None.

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