

Eye injuries in a University Hospital

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ABSTRACT

The aim of this study was to evaluate the occurrence of the ocular trauma in a University Hospital. A retrospective study was done in ocular trauma in patients assisted at the Faculdade de Medicina de Botucatu - UNESP - between December 1995 and May 1999. We studied 2329 files among them 28% had eye injuries. The patients were studied according to age, sex, time of appointment, type of complain, kind of trauma, treatment and follow-up. Males were the most affected, mainly between 20 and 40 years old, most of them occurred during the day. The zone I was the most affected and the close injuries as extra-ocular foreign body and contusion were the most common types of trauma. The majority of the patients received clinical treatment. This ocular trauma in our region had the same aspects that were observed by others. The authors call attention to the necessity of following a universal classification and to take effective preventive measures.

INTRODUCTION

Traumatic ocular lesions are considered medical urgencies due to the risk of sight loss. Many studies show the amazing number of individuals with visual deficit due to trauma (TIELSH et al., 1989; PARVER et al., 1993; BACKER et al., 1996).

It is estimated that in the United States one million of people may be included in this statistic and that, out of them, 75% present monocular

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blindness; young males and young male adults are more prevalent in this context with social and economic implications. It is estimated in 150 to 200 million dollars the yearly expenditure to cover costs with treatment and hospital care due to this disease (STENBERG et al., 1984).

The lack of a common terminology makes comparative studies difficult. However, in recent years two classifications were proposed that are universally accepted (KUHN et al., 1996; PIERAMICI et al., 1997), which will lead to better studies on regional differences of incidence and/or prevalence of ocular trauma.

The aim of this study is to identify, in our region, the nosology of ocular trauma according to the proposed classification, as well as to characterize patients.

MATERIAL AND METHOD

A retrospective study was carried out with patients with eye-lid and ocular trauma entering the Emergency Room of the Hospital das Clínicas of the School of Medicine of Botucatu–UNESP from December 1995 to May 1999. In this period, 6543 patients with ophthalmologic complaints were seen. 2329 files were selected at random and out of them 652 reported ocular trauma.

Items evaluated included age, sex, time of consultation, complaint, ocular examination, type of trauma, care provided and the need for follow up. The ocular alterations were classified according to Kuhn et al., (1996) and Pieramici et al., (1997).

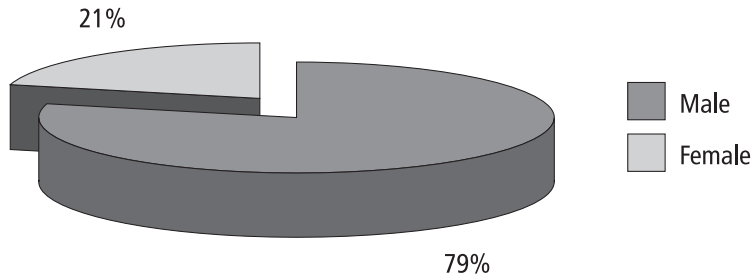
Data obtained were submitted to statistical analysis. Study of frequency used Chi-square test for one sample (SIEGEL; CASTELLAN, 1988). Results were discussed at a 5% level of significance. Statistical interpretations in tables were made by association of a letter and a number for each data in the table.

RESULTS

The number of patients with trauma was 652 accounting for 28% of all cases attended in the period. The greater prevalence was found among males (78.52%) in a rate of 3.65 males to 1 female (FIGURE 1).

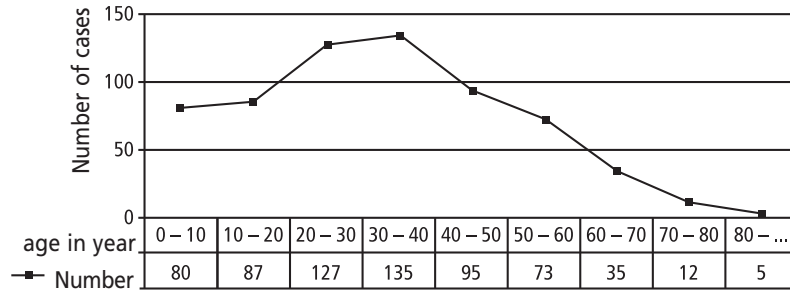
The more affected age group included those ranging from 20 to 40 years (FIGURE 2). 67.90% of patients were attended between 6 a.m. to 6 p.m. with peaks between 9 a.m. and 11 a.m. (16.71%) and 1 p.m. and 4 p.m. (21.76%) (FIGURE 3).

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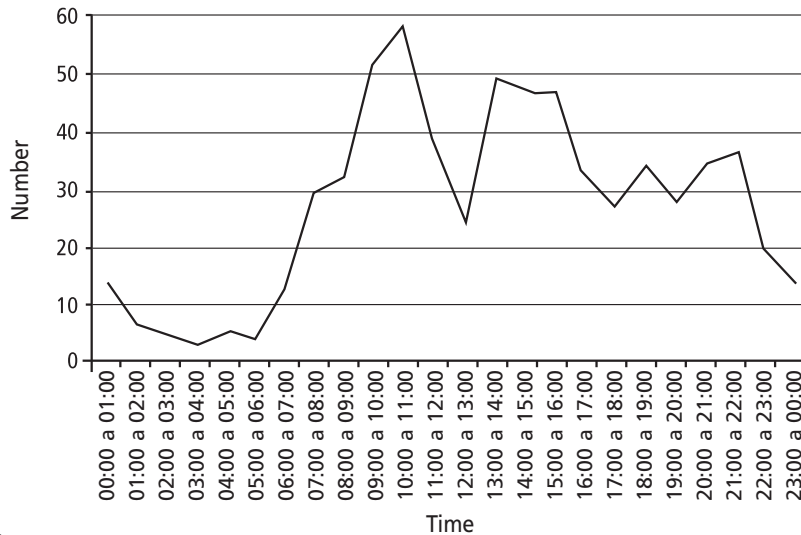
$\chi^2 = 212.24$ (P<0.0001)

FIGURE 1: Sex distribution of patients attended at the Ophthalmology Emergency Room of the School of Medicine of Botucatu from December 1995 to May 1999



$\chi^2 = 239.54$ (P<0.0001)

FIGURE 2: Age distribution of patients attended at the Ophthalmology Emergency Room in the School of Medicine of Botucatu from December 1995 to May 2002.



$\chi^2 = 757.41$ (P<0.0001)

FIGURE 3: Distribution of patients attended at the Ophthalmology Emergency Room in the School of Medicine of Botucatu due to ocular trauma according to the time of arrival.

Most common complaint was ocular pain (44.17%) followed by diminution in visual acuity (18.10%) and lachrymation (15.49%) (TABLE 1).

TABLE 1: Distribution of patients attended at the OER in the School of Medicine of Botucatu according to the complaint.

Complaint	Statistical evaluation	Numbers	Percentage
Pain	Q1	162	24.8
Lachrymation	Q2	20	3.06
↓ vision	Q3	49	7.51
Pain and Lachrymation	Q4	60	9.20
Pain and ↓ vision	Q5	48	7.36
Lachrymation and ↓ vision	Q6	3	0.46
All together	Q7	18	2.76
No complaints	Q8	92	14.11
Not specified	-	200	30.67
TOTAL	-	652	100.00

$$\chi^2 = 312.42 (P < 0.0001)$$

Statistical interpretation: Q1 > Q8 > (Q3 = Q5) > (Q2 = Q7 = Q6)

Regarding the anatomical zone, Zone I was more compromised (TABLE 2).

TABLE 2: Topographic division of ocular trauma in cases attended at the Ophthalmology Emergency Room of the School of Medicine of Botucatu according to the classification of Pieramici et al.

Site of the lesion	Statistical evaluation	Number of traumas	Percentage
Zona I	Z1	423	64.87
Zona II	Z2	143	21.93
Zona III	Z3	48	7.36
Absent	-	21	3.22
Not specified	-	46	7.05
Total	-	652	100.00

$$\chi^2 = 176.07 (P < 0.0001)$$

Statistical interpretation: Z1 > Z2 > Z3

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Closed trauma was more frequent than open ones, including contusion – which occurred isolated or as part of a mixed trauma – and extra ocular foreign body (39.41% and 36.80% respectively). Burns were reported by 15.50% of patients, being 67 cases of chemical burn and 34 of thermal burn. Open trauma was less frequent (TABLE 3).

TABLE 3: Distribution of ocular trauma attended at the Ophthalmology Emergency Room of the School of Medicine of Botucatu according to the type of trauma.

	Type of Trauma	Statistical evaluation	Numbers	Percentage
Closed	Extra ocular foreign body	T1	225	34.50
	Contuse	T2	203	31.13
	Chemical burn	T3	67	
	Thermal burn	T4	34	5.22
Open	Perforating	T5	18	2.76
	Penetrating	T6	13	2.00
	Intra ocular foreign body	T7	9	1.38
	Mixed	T8	48	7.40
	With alteration	T9	1	0.15
	Not specified	-	34	5.21
	TOTAL	-	652	100.00

$$\chi^2 = 1143.27 (P < 0.0001)$$

Statistical interpretation: (T1 = T2) > T3 > T8 > T4 > (T5 = T6 = T7 = T9)

88.03% of patients were treated in clinical basis and 11.97% were referred to surgery (TABLE 4).

TABLE 4: Distribution of the types of treatment of patients with ocular trauma attended at the Ophthalmology Emergency Room of the School of Medicine of Botucatu.

Treatment	Statistic evaluation	Numbers	Percentage
Cinical	C1	574	88.03
Surgical	C2	78	11.97
Total	-	652	100.00

$$\chi^2 = 838.29 (P < 0.0001)$$

Statistical interpretation: C1 > C2

After the ocular trauma, 47.23% of cases needed further ophthalmologic care (TABLE 5).

TABLE 5: Distribution of cases attended at the Ophthalmology Emergency Room of the School of Medicine of Botucatu according to the need of follow up.

Follow up	Statistical evaluation	Number	Percentage
Yes	A1	308	47.23
No	A2	321	49.23
Not specified	-	23	3.53
Total	-	652	100.00

$$\chi^2 = 0.27 (P > 0.05)$$

Statistic interpretation: A1 = A2

DISCUSSION

The proportion of ocular trauma in all cases attended at the Emergency Room of the School of Medicine of Botucatu in the period from December 1995 to May 1999 was 28%, that is, almost one third of cases in need of ophthalmologic care in the Emergency Room were due to trauma.

The male-female relation with ocular trauma in the period was 3.65:1, which is supported by the literature, which mentions frequencies of trauma in males always greater than in women (PARVER et al., 1993; FILIPE et al., 1996; ASBURY; SANIATO, 1997). Causes for that are the aggressivity of men, participation in jobs and sports that are more violent and an overall exposure superior to women.

According to the time of attendance, trauma was more frequent in daytime. This is due to the fact that majority of ocular trauma derive from work accidents, leisure, car crash and other activities made during daytime. Cases of ocular trauma attended at evening and night are due to assaults, car crash, fights and fall.

This study shows a great prevalence of ocular trauma in young patients that is consistent with the literature. Involvement of young persons has social and economic implications since this is the group economically active, besides indicating a failure of protective measures from ocular trauma in the working environment.

44.17 % of cases presented complaints of ocular pain followed by diminution of visual acuity in 18.10%.

Exam of visual acuity, external examination, ocular biomicroscopy tonometry and fundoscopy are quite important exams to be performed while attending cases of ocular trauma, although not always possible, mainly in cases of multiple trauma.

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Regarding the localization of lesions, areas of the body more exposed are the ones more frequently involved. This was evident in this study where lesions of area I (conjunctive, cornea and lids) were more frequent.

Causes for ocular trauma varies a lot according to the region, population (social, economic and cultural pattern), profession and criteria of evaluation. This makes comparative studies difficult. In our region extra ocular foreign body, contuse trauma and chemical and thermal burns were the more frequent traumas. During the World Wars, ocular rupture, laceration and intra ocular foreign body were the most prevalent causes of trauma (WONG et al., 1997). In children, contuse trauma, laceration and extra ocular foreign body are more prevalent (SILVA; NASSRALA, 1998).

Besides specific populations that may be studied, different classification may also difficult the comparison of data. In this regard, the classification of Kuhn et al. (1996) and Pieramici et al. (1997) facilitates the uniformization of the terminology. These classifications are based in multicentric studies and were confirmed by important scientific societies involved in this issue, assuring its wide adoption.

Although important, data on visual acuity and pupil reflex were not retrieved in this study, which can be done, preferably, by a prospective study.

The affected zone has a prognostic value, being more severe the cases with involvement of zones III and II. The majority of our cases showed involvement of Zone I. Most common traumas in our region were extra ocular foreign body and contuse trauma, that is, there was a preponderance of closed trauma over open trauma.

Ocular trauma, although clinically treated in its majority, should not be regarded as a simple condition since they are responsible in the first place for monocular blindness (PARVER et al., 1993; ASBURY; SANIATO, 1997). In this study 88.03% of cases were treated clinically and 47.27% needed some specialized care after the initial diagnosis and treatment. These data reveal that ocular trauma is an important pathology requesting, frequently, a long follow up in almost half of the cases.

Ocular trauma, regardless its many different causes, has always a common characteristic – they could have been prevented, which is the best treatment. In this connection, ocular trauma due to car injuries, occupational causes, leisure and sports, among others, were and are being studied in order to promote preventive measures such as the use of safety belt, crash helmet, goggles and simple preventive measures for children at home (KARA-JOSÉ et al., 1992).

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