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Research Article

Analysis of the Pattern of Ocular Trauma in a Tertiary Hospital in Port Harcourt

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Abstract

Background: This study was conducted to analyze the pattern of ocular trauma in University of Port Harcourt Teaching Hospital.

Methods: This was a retrospective study of all cases of ocular trauma managed at the university of Port Harcourt teaching Hospital from 2009 to 2012. All required information was extracted from patients record managed within the aforementioned period. The extracted patient data included age, gender, the place of residence, cause of injury, part of eye affected and particular eye affected.

Results: About thirty five (35.06%) of the subjects were in the age range of 30 - 39 years. The least affected ages were those less than nine years and more than fifty years who respectively contributed 9.09%. Males (58%) and urban dwellers (56%) were more commonly affected. The commonest injury was blunt trauma which constituted 27.27%. This was followed by corneal laceration and subconjunctival haemorrhage which respectively constituted 22.07%.

The commonest part of the eye that was affected was the cornea which constituted 41.46%. This was respectively followed by the conjunctiva and the Lid which respectively constituted 31.71% and 19.51%. The ratio of right to left eye affectation was 5:3.

Conclusion: Ocular trauma is commoner in the younger age group, in male patients and in urban dwellers. It is mainly due to blunt injuries with the cornea and right eye more commonly affected.

Keywords: *Analysis; Ocular Trauma; Tertiary Hospital*

Introduction

Ocular trauma is a common cause of unilateral blindness [1] and is associated with significant emotional stress as well as numerous emergency room [2] and outpatient visits [3]. Worldwide, 55 million eye injuries restricting activities more than one day occur each year; there are approximately 1.6 million blind people from injuries and an additional 2.3 million people with bilateral low vision from this cause [4]. The incidence of eye injuries may be higher in developing countries [5].

Age and gender were found to correlate with the susceptibility to ocular trauma. The mean age for ocular injury in a study by He Cao., *et al*. [6] on the epidemiology of Patients Hospitalized for Ocular trauma in the Chaoshan region of China was 29.0 years. This corresponds to most other studies in which a mean age of approximately 30 years has been reported [7,8].

Reported incidence and prevalence of ocular trauma between men and women range from two to over five [9,10]. Salvatore C., *et al*. [11], found out that men (84.6%) were affected more than women, while males constituted 83.8% of the patients in He Cao., *et al*. study in China [6], with a male-to-female ratio of 5.1 to 1. A male preponderance is universally reported and thought to be related to occupational exposure, participation in dangerous sports and hobbies, alcohol use and risk-taking behavior [12,13].

The most commonly reported locations of trauma are the outdoor environment, workplace and the home [12,13]. In the Chaosan region study [6], work-related injuries contributed the largest portion of injuries (46.5%).

The cause of injuries varies. Canavan YM., *et al*. reported 32.5% and Mackay., *et al*. 70% eye injuries as a result of road traffic accidents [14,15]. The second cause was street fight (assault, 16.9%) which is similar to the findings by MacEwen., *et al*. (18.6%) [16]. Groessl., *et al*. reported incidence of assault-related ocular injuries ranging from 1% to 53% [17].

There are also varying results on the prevalence of either closed or open globe injuries. Ojabo CO in Nigeria [18] and Pandita A in New Zealand [19], reported that closed globe injuries were more common than open globe injuries. On the contrary, ElMekawey., *et al*. in Egypt and Jahangir et.al. in Pakistan showed that the open eye injury was higher [20,21].

Different eye structures could be involved depending on type of injury. In a clinical Study of blunt ocular trauma in a tertiary care center by Pai S., *et al*. [22], the most commonly involved eye structure was conjunctiva (84.375%), followed by lid and adnexa (62.5%).

Methodology

This was a retrospective study of all cases of ocular trauma managed at the university of Port Harcourt teaching Hospital from 2009 to 2012. All required information were extracted from patients record managed within the aforementioned period. The extracted patient data included age, gender, the place of residence, cause of injury, part of eye affected and particular eye affected.

Completed records from 78 patients were classified by the standardized international classification of ocular trauma (Birmingham Eye Trauma Terminology, BETT) [23].

All medical records were anonymous and no patient information could be extracted except for research purposes. The research described herein adhered to the tenets of the Declaration of Helsinki.

Results

Characteristics	Frequency n = 77	Percentage (%)
Age		
≤ 9 years	7	9.09
10 - 19 years	9	11.69
20 - 29 years	20	25.97
30 - 39 years	27	35.06
40 - 49 years	7	9.09
≥50 years	7	9.09
Sex		
Male	45	58.44
Female	32	41.56
Location		
Urban	43	55.84
Rural	34	44.16

Table 1: *Socio-demographic characteristics.*

About thirty five (35.06%) of the subjects were in the age range of 30 - 39 years. This was followed closely by those between 20 - 29 years which constituted 25.97%. The least affected ages were those less than nine years and more than fifty years who respectively contributed 9.09%. The male to female ratio was about 3:2 while urban to rural ratio was 5:4.

Characteristics	Frequency n = 77	Percentage (%)
Injury (n = 72)		
Blunt trauma	21	27.27
Cornea laceration	17	22.07
Subconjunctival haemorrhage	13	16.88
Lid laceration	6	7.79
Chemical burns	5	6.49
Ruptured globe	3	3.89
Blind eye	1	1.29
Gunshot injuries	1	1.29
Hyphaema	2	2.59
Lens dislocation	2	2.59
Penetrating injuries	2	2.59
Thermal burns	2	2.59
Vitreous loss	2	2.59

Table 2: *Injury.*

The commonest injury was blunt trauma which constituted 27.27%. This was followed by corneal laceration and subconjunctival haemorrhage which respectively constituted 22.07% and 16.88%. Gunshot injury constituted only 1.29%.

Characteristics	Frequency n = 77	Percentage (%)
Part (n = 41)		
Cornea	17	41.46
Conjunctiva	13	31.71
Lid	8	19.51
Anterior Chamber	1	2.44
Lens	1	2.44
Open globe	1	2.44
Eye (n = 16)		
LE	10	62.50
RE	6	37.50

Table 3: *Part.*

The commonest part of the eye that was affected was the cornea which constituted 41.46%. This was respectively followed by the conjunctiva and the Lid which respectively constituted 31.71% and 19.51%. The ratio of right to left eye affectation was 5:3.

Discussion

The study showed that ocular trauma were common between the ages of 30 - 39 years. This was similar to findings from other studies [7,8]. This is active age range who engage mainly in outdoor activities to earn a living and support the dependents. The most commonly reported locations of trauma are the outdoor environment, workplace and the home [12,13]. In the Chaosan region study [6], work-related injuries contributed the largest portion of injuries (46.5%). Trauma was least encountered in the less than nine and more than fifty age groups. This is because the less than nine group are dependents and may not be exposed to work related trauma and they are less prone to engage in violence or dangerous sports. On the other hand, the more than fifty age group are the retirement age who may not be strong enough for any of the aforementioned predictors of ocular trauma.

Ocular trauma was commoner among the male folks in this study. This was also in agreement with other studies which showed that ocular trauma was commoner in males [9-11]. A male preponderance is universally reported and thought to be related to occupational exposure, participation in dangerous sports and hobbies, alcohol use and risk-taking behavior [12,13]. Furthermore, males are more prone to violence which is major predictor of ocular trauma. They are more likely to be perpetrators as well as victims because of the likelihood of fights and violence.

Blunt trauma was the commonest injury encountered in this study. This could be assault-related or street fights bearing in mind that the study was carried just after the era of militancy in the oil rich Niger Delta of Nigeria. The commonest eye structure affected was the cornea followed by conjunctiva. This was unlike the study by Pai S., *et al*. [22], where the most commonly involved eye structure was conjunctiva (84.37%), followed by lid and adnexa (62.5%).

The right eye was more affected. This is at variance with the studies elsewhere [4,5] where the left eye was more involved because majority of the populace in the study area were right handed and would likely injure the left eye which is situated opposite in a face off confrontation.

Conclusion

Ocular trauma is commoner in the younger age group, in male patients and in urban dwellers. It is mainly due to blunt injuries with the cornea and right eye more commonly affected.

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