Nigerian Journal of Surgical Research
Vol 8 No 1-2 ,2006:34-37

Original Article

Eye injury requiring hospitalisation in Enugu Nigeria: A one-year survey

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Abstract

BACKGROUND: - Eye injuries are becoming relatively important, not only as a cause of presentation but also a cause for admission at health centres in Nigeria. In view of this trend being observed and the fact that most eye injuries requiring hospital admission may give rise to grave ocular consequences. This study set out to highlight the pattern of eye injuries admitted into the eye ward of a Nigerian Teaching Hospital over one year. This is with a view to providing suitable protocols in the management and prevention of such injuries and their attendant ocular complications.
MATERIALS AND METHODS: - A retrospective study of all cases of eye injury admitted into the eye ward of the University of Nigeria Teaching Hospital, Enugu, Nigeria in the year 2003 was conducted. All the hospital records of such cases were studied.
RESULTS: - Eye trauma constituted 15.95% of 257 admissions. Males comprised 78%, and children comprised 22%. The commonest agents of injury were gunshot pellets, glass, metal and wood pieces. Activities implicated commonly were assault/combat, agricultural/artisan work-related accidents and road traffic accidents. A variety of sight threatening complications were noted in these subjects. Visual acuity on presentation ranged between $^{6}/_{12}$ and no light perception (NPL). After treatment, approximately 80% of the injured eyes were blind.
CONCLUSION: - Eye injuries requiring hospitalisation in Nigeria are not only common, but also severe. Safety measures and health education campaigns should help reduce this public health problem.
Keywords: - Eye injury, Hospitalisation, Nigeria.

Introduction

Eye injury as a facet of everyday life is presumably fast becoming a common cause of presentation and admission at health centres in Nigeria. However, these injuries do not usually occur as random events as some population groups or certain activities of daily living have increased risks of eye injury because of greater exposure to hazards. Most eye injuries are avoidable, and a greater proportion is believed to be superficial in nature and transient in their effects. However, serious eye injury requiring hospitalisation gives rise to irrevocable structural damage or functional loss most times. For the afflicted person (usually in the active years of life) the visual, vocational and economic consequences are quite enormous. For the injured eye[1], the final outcome depends on (i) severity of the initial lesion (ii) the first aid treatment provided, (iii) the time between injury and definite care (iv) quality of care and (v) pre existing eye care status. With the current burden of various eye injuries presenting to the ophthalmologist and in the light of increased mechanisation in our lives associated with the recent trends in our socio-economic, political and cultural environment, this study set out to determine the pattern of ocular trauma cases which were admitted in University of Nigeria Teaching Hospital (UNTH, Enugu) over a one year period. This is with a view to proffering measures which could help prevent such injuries and reduce the burden of their attendant ocular sequelae.

Materials And Methods

This is a retrospective study of patients with eye injuries admitted into the eye ward of the University of Nigeria Teaching Hospital, Enugu, Nigeria (UNTH), either through the general ophthalmology out-patients clinic or the accident and emergency unit. The hospital records of all these patients admitted into the eye ward of the University of Nigeria Teaching Hospital, Enugu (UNTH) in 2003 were studied. Relevant information extracted included age/sex distribution, activity underlying the eye injury, the causative agents of injury, pre-treatment/post-treatment visual profile and complications associated with the injuries. Incomplete hospital records of admitted patients were excluded from the study. The study also took into consideration the total number of eye injury cases which presented at the hospital within the study duration, irrespective of whether they were admitted or not into the eye ward.

An eye was considered blind if the best corrected distance visual acuity was worse than $^{3}/_{60.}$ An eye was considered to be in the low vision category if the best corrected distance visual acuity was between $^{6}/_{18}$ and $^{3}/_{60.}$ Simple manual data analysis was done. In this retrospective study it was not possible to conduct further investigations into some of the study variables due to the inherent limitations in retrospective investigations.

Results

There were 70 recorded eye injuries and 41/70 (58.6%) were admitted to the department of ophthalmology of the UNTH in the year 2003. These eye injuries constituted approximately 16% of the 257 eye ward admissions. Thirty-one of these admissions for eye injury (75.6%) presented at the accidents/emergency unit, and 10 (24.4%) were first seen in the general ophthalmology outpatients clinic. Thirty-two (78.1%) of these patients were males, and nine (21.9%) females. The age range was between 2 years and 75 years, with a median of 51. .Twenty seven (65.9%) of the patients belong to the active and economically productive age range (16 – 65years) years. Nine (21.9%) of these patients were children (6 males & 3 females). Artisans/farmers and traders comprised 29.3% and 24.4% respectively of the eye injury patients. Forty-five eyes were injured in these 41 patients . The right eye only was injured in 58.5% of the patients and the left eye only in 31.7% of the patients. Both eyes were injured in 9.8% of the patients. Twenty-five patients (60.9%) presented after 48 hours of injury, and 16 (39.1%) presented within 48 hours of injury (see Table 1)

The etiology of injury in these patients is illustrated in Table 2.The commonest cause of injury was assault/combat (53.7%), occupational hazards in farmers and /artisan (19.5%) and road traffic accidents (12.2%) Perforating/penetrating injuries (with or without intraocular foreign bodies) and/or eyelid/adnexal lacerations accounted for 61% , while blunt eye injuries and chemical injuries (acid) were responsible for 34.1% and 4.9% of the injuries respectively. Sixteen percent of the 25-penetrating/perforating and eyelid/adnexal injuries were in children. Projectiles such as gunshot pellets, metal pieces,, splinters of glass and wood were responsible for most of these injuries (73.2%). Gunshot pellets (22%) were noted to be the single leading cause of eye injury. Various types of ocular complications (both anterior and posterior segment complications) were seen in all the 45 injured eyes . These were subconjuctival haemorrhage (37.8%), corneo-scleral laceration (33.3%), uveal prolapse (28.9%), cataract/lens dislocation or subluxation/anterior capsule rupture (24.4%), perforated/ruptured globe (22.2%) adnexal/lid lacerations (13.3%), hyphaema (15.6%), uveitis/endophthalmitis (11.1%), vitreous haemorrhage (11.1%) and retinal detachment (6.7%). Surgical intervention was carried out on 34 injured eyes (75.6%) out of the 45 eyes. The procedures done included wound repairs-corneoscleral repairs, adnexal/eye lid repairs, and uveal abscission/ reposition (17 eyes), cataract extractions (11 eyes), evisceration/enucleation (8 eyes), and anterior chamber paracentesis (5 eyes). As would be expected, some eyes had more than one procedure conducted on them. After wound healing , 80% of the eyes remained blind and 9% regained normal vision. The remaining 11% remained in the low vision category (visual impairment/severe visual impairment. Table 3 illustrates the visual acuity status of the 45 eyes on presentation and on discharge from the hospital ward. The identified main causes of blindness in the 36blind eyes on discharge from the hospital were corneal scarring (13 eyes – 36.1%), missing eye ball (8 eyes-22.2%)), retinal detachment,(post-injury or post-surgery)(7 eyes- 19.4%), vitreous haemorrhage (5 eyes-13.9%) and uncorrected aphakia (3 eyes-8.3%).

Table 1:Time to presentation in Hospital

Time interval	Eye Injured Patients No (%)
Within 24hours	7 (17.1%)
24 – 48hours	9 (22%)
3days – 7days	19 (46.3%)
> 7days	6 (14.6%)
Total	41 (100 %)

Table 2:Etiology of eye Injury In 41 Patients

Etiology	**No**	**%**
Assault/Combat	22	53.7
work-related accidents	8	19.5
Road traffic accidents	5	12.2
Domestic/home accidents	2	4.9
Play	2	4.9
Couching	2	4.9
Total	41	100

Table 3: Visual Acuity (45 eyes) in 41 Patients

Visual Acuity	On presentation	After discharge
$^{6}/_{18}$	2	4
$< {}^{6}/_{18}$ - $^{6}/_{60}$	3	3
$< {}^{6}/_{60}$ - $^{3}/_{60}$	7	2
$< {}^{3}/_{60}$ – no light perception	33	36
Total	45	45

Discussion

Ocular trauma is an important cause of preventable visual loss particularly among the younger age groups[2]. Reports from developing and developed countries have shown the importance of eye injury as a cause of blindness[3,4]. In this study, the preponderance of males affected by eye injury is similar to that of other reports[5,6]. This has always been attributed to the fact that males are usually more likely be involved in high risk behaviour, adventurous and aggressive. Similar to other studies, majority of persons affected by eye injuries in our study are in the active age groups[7,8]. There seems to be a predilection for the right eye in this study, which cannot be easily attributed to any factor. However, there may be a relation to the fact that most people are generally right handed in nature. In this study eye injuries requiring hospitalisation are common and quite severe in their effects. Penetrating/perforating injuries in particular are associated with high risk of blindness. Other authors have previously made these observations[1,5,8].Eye injuries are becoming important reasons for admissions into hospital with ocular disorders. In many developed countries this may probably be attributed to the recent shift of common ophthalmic procedures, such as out-patient cataract surgery (phacoemulsification), to out-patient settings[1]. This has invariably made hospitalisation for cataract and other related conditions largely unnecessary. On the other hand, an increasing number of ophthalmic bed spaces in such facilities are being taken up by patients with eye injuries and other sight/life threatening eye conditions. With the introduction of intraocular micro-surgical cataract techniques, the average cataract patient now stays for a shorter period in the hospital. Majority (85.4%) of these eye injuries were caused attributed to assault/combat, work-related accidents and road traffic accidents. The commonest causative agents were gunshot pellets, metal pieces, flying glass and wood splinters (all projectiles). Our observations differ from those of Oshoba[9] who recorded more of the injuries being due to household accidents and the commonest causative agents being blunt objects, sharp objects and blow from assaults. In his study, gunshots were responsible for only 2.2% of the injuries. Our report also differs from report by Olurin[8] and Abiose[10] in which occupational/play and domestic accidents were the common activities predisposing to eye injuries. Sharing close similarity with our findings is the report by Adeoye[11] suggesting that there is an increasing occurrence of ocular gunshot injuries with worsening economic depression in Nigeria. Our study suggests that there is a high occurrence of assault cases resulting in severe eye injury and requiring hospitalisation. This may not be unconnected with the worsening trends in the Nigerian Socio-economic environment and the attendant problems of high unemployment, poverty, lack, armed robbery, societal tension and instability. Invariably, this leads to a situation where individuals resort to the gun, acid, broken bottles and sharp metallic objects (i.e. knives) as agents of combat. There is now an urgent need to consider providing strict legislation and enforcement on firearms control and possession. There is also need for proper orientation and training of security personnel, especially policemen regarding the use of the baton and gun. Four of the patients included in this study had eye injuries from assault by police officers who used the baton and/or gun butt on them. At the same time, an improvement in the socio-economic status of the citizens could lessen hostility and violence in the society, by guaranteeing employment and basic infrastructures. The relatively high occurrence of eye injuries due to occupational and road traffic accidents makes it imperative that there be a stronger and stricter enforcement of the seat belt legislation, safe driving habits, industrial eye protection and eye safety measures at all work places, including agricultural sites and metal works sites. In order to minimise eye injuries caused by broken windscreen, it has been shown that eye injuries are significantly reduced when the windscreen is made of laminated glass instead of toughened glass[12]. Public eye health protection and promotion campaigns targeted mainly on industrial/agricultural workers, motorists (including cyclists) and school children would be beneficial. In this study, two children suffered injury from rubber band and metal piece respectively during play

Better supervision of children during play/recreation, with provision of safer toys would greatly help reduce the frequency of eye injuries in Children. In creating public eye safety awareness, couching also should be discouraged and rural cataract surgical services should be intensified. The severity of injury encountered in this study is typified by the majority of them destroying the globe from penetrating/perforating injuries and/or lacerating the lid/adnexal from projectiles and missiles frequently used during assault

and /violence. This is different from observations in Ileife, Nigeria where it was shown over a one-year period that blunt eye injuries were commoner than perforating injuries[13]. They however, have attributed this to the decline in activities like game hunting, which previously contributed significantly to perforating injuries. The poor visual outcome of the majority of the eyes (91.1%) of these patients requiring hospitalisation is indicative of so many factors, namely; the severity of the eye injury sustained (A significant number were penetrating/perforating/lacerating injuries); delayed presentation to the hospital (only 39.1% presented within 1st 48hours) and also the lack of infrastructure to provide complex restorative procedures. There is a dire need to improve eye care facilities in Nigeria, and to provide training particularly in all sub-specialties of eye surgery. With all these measures in place, the burden of ocular trauma in Nigeria ought to be drastically reduced.

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A**cknowledgement**

I wish to acknowledge the contributions of Dr. (Mrs) A. E. Aghaji and Prof. R. E. Umeh to this study.
I also wish to acknowledge the assistance of Dr. Chinyere O. Mbachu and Dr. Chidebe O. Anaekwe , for retrieving the relevant hospital records of the subjects

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