A STUDY OF EYE INJURIES AT KORLE-BU, AKIM ODA AND WA GOVERNMENT HOSPITALS

[1]CHRISTINE NTIM-AMPONSAH, [2]JOSEPHINE ABBEY & [3]JONAS KANSAABAYEL

[1]Ophthalmology Unit, Department of Surgery
University of Ghana Medical School
P.O. Box 4236, Accra

[2]National Ophthalmic Nurses Training Programme Co-ordinator, Accra

[3]Ophthalmic Nurse in-charge of Eye Clinic, Government Hospital, Wa

SUMMARY

Four hundred and seventy-nine (479) cases of eye injuries were surveyed at Korle-Bu (K'Bu), Akim-Oda, and Wa government hospitals in a prospective study. Males predominated with a male to female ratio of 2.3:1. Most of the injuries occurred in the third decade age group. About 1 in 4 injuries occurred in children. The major types of injury encountered were superficial foreign bodies, blunt and perforating injuries. Leading causes of injury were small atmospheric particles, sticks, stones, human hand and fighting. Drunk cyclists were targets in the Wa district.

INTRODUCTION

Ocular injuries represent a major cause of ocular morbidity and monocular blindness but do not usually show up in data on blindness because blindness is defined by vision less than 3/60 in the better eye.[1] However slight the injury may appear initially there may be severe damage especially without prompt adequate treatment leading to impaired vision.[2] Ocular morbidity and blindness are not only great personal loss financially, physically and psychologically but also put strain on the limited resources of the national health budget.

The 3 hospitals included in the study are general hospitals with eye clinics attached. Korle-Bu's clinic is Ghana's largest tertiary eye institution operated by ophthalmologists and supplemented by ophthalmic nurses. The other 2 are in the districts: Wa in the Upper West Region of Ghana and Akim Oda in the Eastern Region. They are manned by ophthalmic nurses. The average monthly attendance of patients at the eye clinics is about 3,000, 60, and 180 for Korle-Bu, Akim Oda and Wa respectively.

The purpose of this study was to survey the epidemiology of eye injuries at these hospitals and make suggestions towards reducing eye morbidity, and visual handicap.

Correspondence to: [1]Mrs Christine Ntim-Amponsah, FRCS

METHOD

This is a six month prospective study of eye trauma seen at three (3) centres - Korle-Bu, Akim-Oda and Wa Government Hospitals that includes all consecutive cases of eye injuries who attended the clinics. Data was collected by data entry forms designed to provide information on sex, age, cause of injury, interval between time of injury and presentation, previous treatment of injury, vision in affected eye before injury (subjective: ranked as good, defective, blind), type of injury, other injury to rest of body, visual acuity on discharge (or at follow up if better). Patients were followed for a variable period up to a maximum period of six months.

The entry forms were explained to doctors and nurses involved in the collection of the data. They were encouraged to record the data themselves but if this was not possible in Korle-Bu to give the patient's notes to the principal author to record it. The principal author retrieved omitted information from the hospital records on a weekly basis, and interviewed and examined patients when possible to get the records as complete as possible of Korle-Bu. These cases were managed mostly by the ophthalmologists and less often by ophthalmic nurses except superficial foreign bodies which were managed mostly by nurses.

Poor follow up and incomplete recording were the main problems encountered.

RESULTS

The results of Korle-Bu covered the entire six month period of study, while those of Wa and Akim-Oda covered only 5 months. The summary of the results obtained are displayed below. A total of 479 eye injuries were compiled from all the 3 areas. The distribution is shown in Table 1.

It is very clear from all the areas that males predominate with a male: female ratio of 2.3:1 as shown in figure 1.

Table 2 presents summary of the ages, children and adults.

Age grouping by decade is expressed in percentages in Table 3 and by a graph in figure 2.

The mean ages were 25 years (s.d. ±15), 29 years (s.d. ±16) and 23 years (s.d. ±11) for Korle-Bu, Oda, and Wa respectively. Most of the injuries occurred in the first 4 decades of life (87.37%, 84.61%, 95% for K'Bu Oda, and Wa respectively). The frequency

Table 1. Distribution of Cases in Korle-Bu, Oda and Wa

	Korle-Bu (6 months)	Oda (5 months	Wa (5 months)
Total No. of Cases	420	39	20
Average No. of Cases per Month	70	8	4

Figure 1. Sex Distribution in Percentages

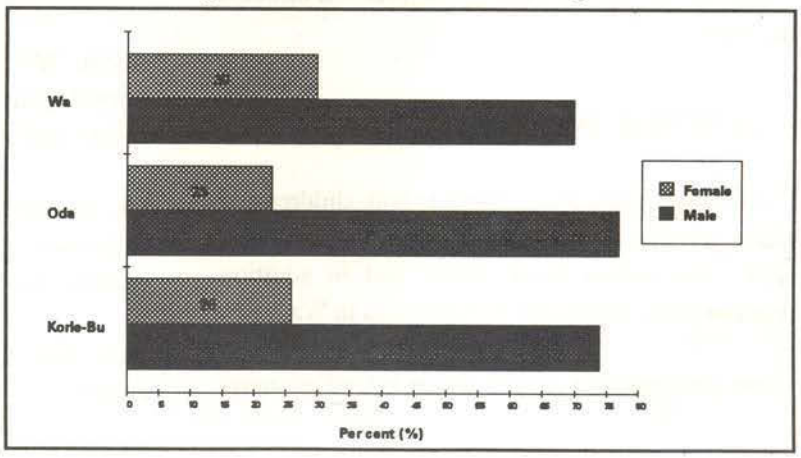


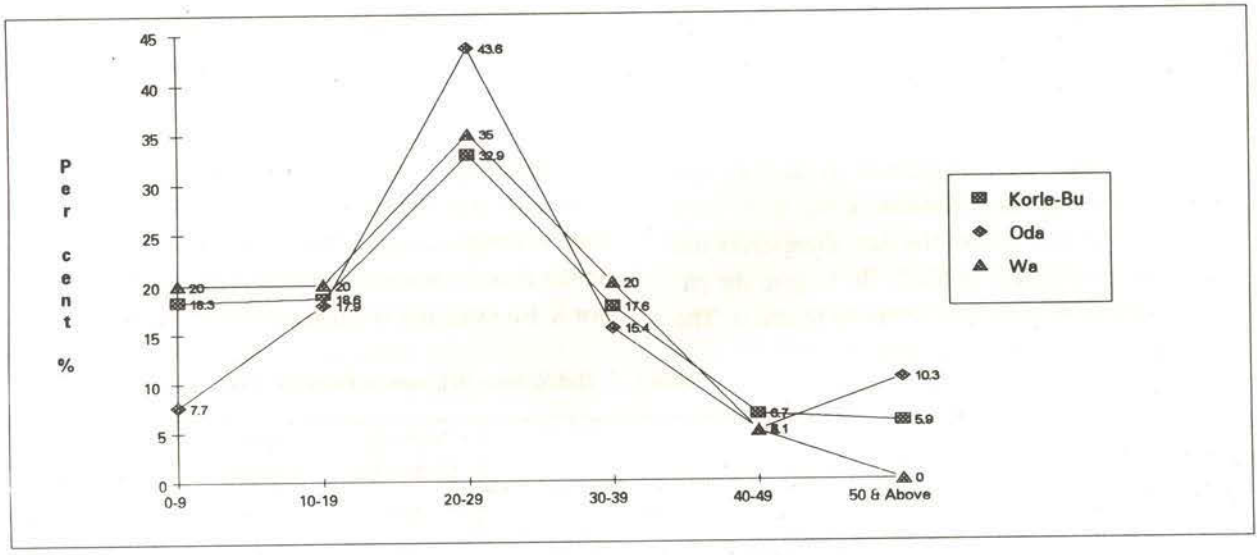
Table 2. Summary of Ages (Range, Children Below 16, Adults 16 and Above)

Hospital	Age Range	% Under 16 Yrs	% 16 Yrs & Above
Korle-Bu	2 wks -95 Yrs	25.6	74.5
Oda	3 - 72 Yrs	15.4	84.6
Wa	6 - 45 Yrs	30	70

Table 3. Percentage Age Distribution By Decade

Decade	Korle-Bu	Oda	Wa
0 — 9	18.3%	7.7%	20%
11 — 19	18.6%	17.9%	20%
21 — 29	32.9%	43.6%	35%
31 — 39	17.6%	15.4%	20%
41 — 49	6.7%	5.1%	5%
50 & Above	5.9%	10.3%	0

Figure 2. Injuries By Decade



of injuries from the sixth decade is very low.

Tables 4a, 4b, and 4c show the objects that inflicted the injuries.

CAUSES OF INJURY

The leading causes of eye injury in both children and adults were small particles (foreign body), stones, sticks, the human hand, fights and in addition drunken riders falling off their bicycles in Wa.

Small atmospheric particles which lodged as superficial foreign bodies on the cornea, subtarsal region and conjunctiva included sand, metallic particles, vegetable material and insects.

About 76% of the sharp objects were sticks (including broomsticks in children) and the rest were knives, nails, fence, thorn, broken bottle.

The commonest blunt object was the human hand. Others were metal rods, footballs, human head, shirt, suitcase, and window.

There were 2 explosives; a hand grenade and a toy rocket.

Table 4a. Causes of Injury (Korle-Bu)

	Under 16 Years	16 Years & Above	Total	%
Small Particles	41	165	206	65.2
Sharp Objects	8	21	29	9.2
Fights	5	14	19	6.0
Stones	11	8	19	6.0
Chemicals	0	11	11	3.5
RTA	1	9	10	3.2
Blunt Objects	5	7	12	3.8
Explosives	1	1	2	0.6
Thermal	1	2	3	1.0
UV Light /welding	0	2	2	0.6
Iatrogenic	0	2	2	0.6
Birth Injury	1	0	1	0.3
Total	**74**	**242**	**316 (100%)**	**100**

Table 4b. Causes of Injury (Oda)

	Children	Adults	Total	%
Fight	3	11	14	35.9
Small Particles	0	6	6	15.4
Sharp Objects	1	7	8	20.5
Chemicals	0	2	2	5.1
Blunt Object	1	7	8	20.5
Fall	1	0	1	2.6
Total	**6**	**33**	**39**	**100**

Table 4c. Causes of Injury (Wa)

	Children	Adults	Total	%
Small Particles	0	6	6	30
Cycling While Drunk	0	4	4	20
Sharp Objects	2	1	3	15
Fight	0	2	2	10
Football	2	0	2	10
RTA	0	1	1	5
Thermal	1	0	1	5
Chemical	1	0	1	5
Total	6	14	20	100

The birth injury was a case of retrobulbar haemorrhage in a newborn.

TYPES OF INJURY

Superficial foreign bodies and blunt injuries formed the bulk of injuries in all 3 areas. The details are displayed in figure 3. Perforating eye injuries formed about 10% of injuries in both Korle-Bu and Oda and 5% in Wa. Others were lid lacerations, thermal burns, ultra violet radiation, ruptured globe and conjunctival tear. There were only a few injuries to the other parts of the body: facial lacerations, fractures and a traumatic amputation of the forearm.

VISION BEFORE AND AFTER INJURY

Evaluation of vision is displayed in Table 5.

- Vision before injury is patient's own subjective assessment ranked as good, defective and blind.
- Blind after injury = visual acuity <3/60 (WHO)
- Defective after injury = visual acuity worse than 6/12 but 3/60 or better
- Good refers to visual acuity 6/12 or better
- Lost eye refers to surgical excision of whole eyeball (enucleation) or contents within the scleral shell (evisceration).

Whereas this information was complete in all records from Oda and Wa, it was incomplete in many records from Korle-Bu.

Figure 3. Types of Injury

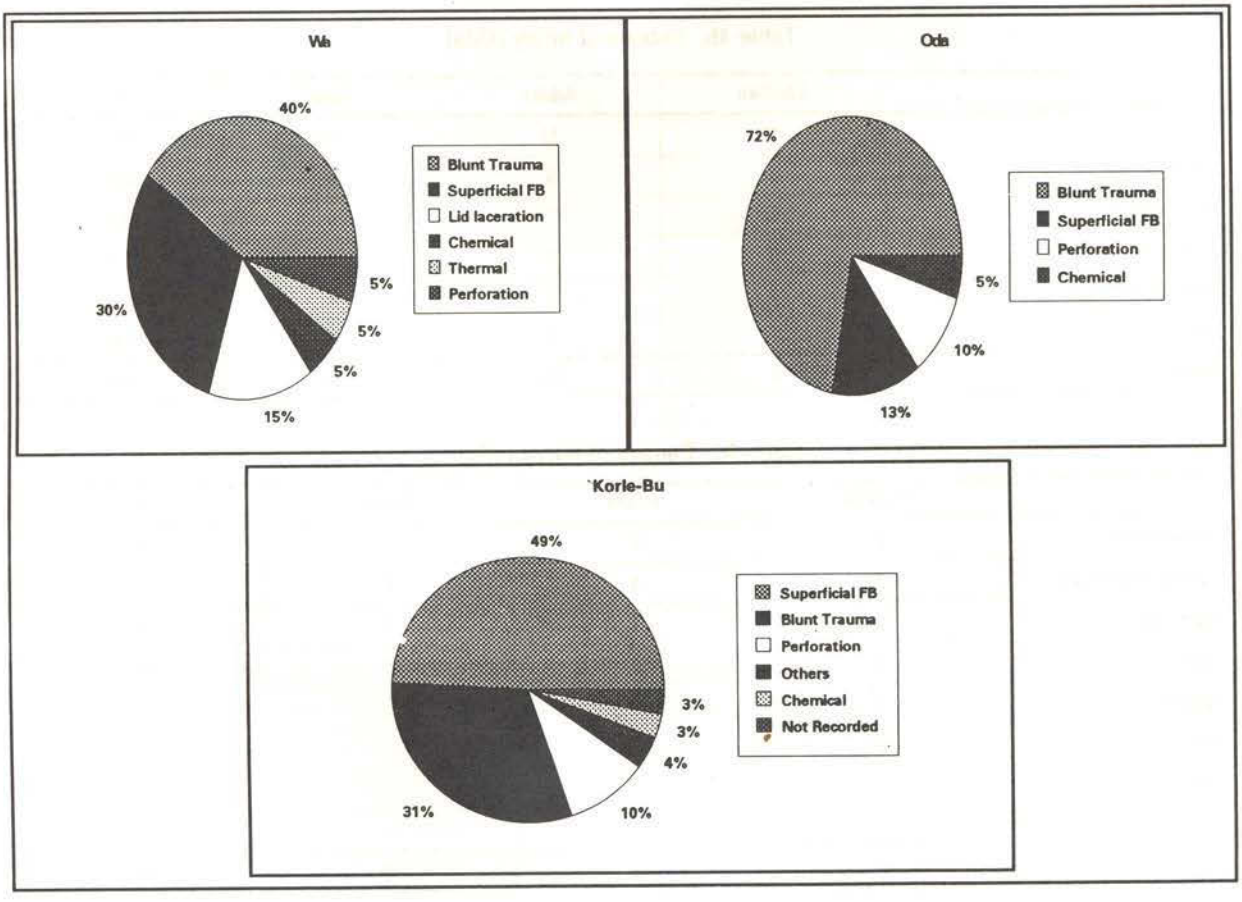


Table 5. Vision Before and After Injury

Before — After	K'Bu	Oda	Wa
Good — Good	29 (39.7%)	27 (67.50)	19 (95%)
Good — Defective	10 (13.7%)	5 (12.5%)	0
Defective — Defective	2 (2.7%)	3 (7.5%)	0
Good — Blind	21 (28.8%)	4 (10%)	1 (5%)
Defective — Bind	3 (41%)	0	0
Blind — Blind	4 (5.5%)	1 (2.5%)	0
Lost Eye	4 (5.5%)	—	—
Total	73 (100%)	40 (100%)	20 (100%)

DISCUSSION

The true incidence of injuries involving the eye is unlikely to be known from hospital records. There tends to be under reporting of domestic accidents and self medication is common.

It has emerged from epidemiological studies that males have higher rates of ocular trauma than female (WHO, 1992). A study in Kumasi,[2] and this study also reveals the same trend. Generally males tend to be involved in everyday activities that are more likely to make them more vulnerable to injuries than females. Males predominated in all types of injuries except the 3 cases of thermal injury which were monopolised by females (no doubt as they were associated with cooking). The high proportion of injuries in children is undesirable.

The higher incidence of eye injury in the 3rd decade(20-29) may pose socio-economic problems. This group constitutes a major proportion of the senior students and youth labour force. Loss of labour force and income, cost of rehabilitation services when indicated, and social problems could be expensive in kind and or cash. The high number of injuries in this group has been attributed to social reasons as many of the injuries in this group were sustained in drinking bars and sporting activities.[2]

The low incidence over the age of 50 coincides with the period of decreasing activity with aging. The single neonate draws attention to eye injury occurring during birth. Two cases among 6 of neonatal proptosis due to retrobulbar haemorrhage treated at the Korle-Bu eye clinic in 1969[3] have been documented in the literature. There were vision-threatening complications due to cornea exposure and infection. Indeed one lost the eye. Holden R. *et al* published external ocular trauma in instrumental and normal deliveries in Cardiff in 1992.[4] Neonates should not be forgotten when studying eye injuries.

The major objects causing the injuries were small atmospheric particles, stones, sticks (including broomsticks), human hand in both children and adults. Sticks and stones are common objects highlighted in Africa[5] as causes of ocular trauma and the authors would like to highlight the human hand too. The documentation of drunken cyclist, a regional difference found in Wa where bicycles are popular means of transport is interesting. In addition to the slogan "if you drink don't drive and if you drive don't drink" one may now add if you drink don't cycle and if you cycle don't drink.

Only about a fifth of patients from all the areas reported at the clinic within 2 days of the injury (the 2 days took travelling time into consideration). Those who reported late included perforating eye injuries which are ophthalmic surgical emergencies and patients who resided in Accra. Self medication with various eye drops was common even with cases of perforation injuries. The eye drops were mostly orthodox antibiotics or ethnomedical preparations.

Although the injuries have been classified into types or patterns for convenience, these types may overlap. Superficial foreign bodies form the bulk but they usually follow an uneventful course and indeed

most of them did not bother to come back for follow up. Perforating injuries, though relatively of low proportion, tend to be the most serious and demanding special ophthalmic care. Despite good anatomical repair, visual loss is a real concern and is often compounded by cosmetic problems. Two cases with perforation injuries lost their eyes and out of the 21 with completed records on vision, 11 who had good vision before perforating became blind in the affected eye. There were 18 others who had no record of pre-trauma vision and therefore this comparison could not be made. Five cases were blind before incurring injury and 3 who had defective vision before injury became blind. This finding emphasises the importance of recording vision before injury both for monitoring management and for **medico-legal purposes.**

CONCLUSION AND RECOMMENDATIONS

Ocular trauma is indeed an important cause of ocular morbidity and visual handicap and consumes time of medical staff. The impact of ocular trauma, in terms of need for medical care, loss of labour and income, and cost of rehabilitation services when indicated clearly makes the strengthening of preventive measures very worthwhile.[6] The well-completed questionnaires were those from the districts. This is perhaps an indication that a nationwide collaborative prospective study on eye injuries is feasible. In view of the numerous records in which pre injury visual acuity was not recorded the author wishes to remind and emphasise to all those who manage eye injuries that in their well meaning enthusiasm to save the patient's eye the medico legal aspects **must** also be attended to.

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