More than meets the eye: a study of the time lost from work by patients who incurred injuries from corneal foreign bodies

M M Alexander, J D A MacLeod, N F Hall, A R Elkington

Abstract

A prospective study was carried out to establish the time lost from work due to corneal foreign body injury. Data were collected over a 5 month period on a total of 504 patients attending a busy district hospital eye casualty department. The median time lost through injury was 4 hours and 148 patients (30%) took no time off work. Corneal foreign bodies are known to be painful injuries but in spite of this few patients take more than half a day off work.

All corneal foreign bodies are potentially sight threatening; the cornea may become scarred or distorted and intraocular infection may set in. Moreover the injury is characteristically painful and the patient may be put to a good deal of inconvenience and lose time from work.

Recent correspondence has suggested that employers may incur considerable costs through employees losing time from work.¹ This study provides details of the time patients lost from work. To our knowledge there are no figures available in the literature on this.

The opportunity was also taken to establish the source of these injuries.

The casualty department at Southampton Eye Hospital provides a 24 hour accident and emergency service for the general public in South West Hampshire. The resident population served by this hospital is approximately 420 000 although this number increases considerably during the summer months due to the popularity of the New Forest and the sailing facilities on the Solent.

The department is staffed by two senior house officers (SHOs) during the morning and one on-call SHO to cover the remainder of the day and the following night.

Trained nurses who have qualified with the English National Board (courses 346 and 348) examined and assessed all patients. The extended role of the nurse is currently practised in this department and a high proportion of patients receive emergency treatment carried out by members of the nursing staff.²

Patients and methods

A prospective study was carried out in the casualty department of the Southampton Eye Hospital over a 5 month period. Information was collected on 504 patients who presented with corneal foreign body injuries.

Patients included in this study presented to the department from 12 January 1990 to 30 May

1990. An invitation to take part in the study was extended to all patients attending during this period. Each patient was given an outline of the study to read. The introduction asked if the patient would be willing subsequently to receive a telephone call to establish the time lost from work due to injury. Queries were dealt with by the duty SHO or the research sister and those patients unwilling to be contacted had this fact entered on their casualty card. These patients were not contacted later but details of their injuries were included in the findings of the study and the analyses of the results. Written consent to take part in the study was not considered necessary by the local ethical committee.

Data were collected daily by the duty SHO and details were transferred from the casualty record card to a study proforma. The following information was recorded on all patients: age and sex, occupation, date, time and place of injury, activity at time of injury, use and type of any eye protection, type of foreign body, the amount of time lost from work, and whether the patient was an employee or self employed. The proforma was completed following a telephone conversation with the patient and all data were entered on a computerised database. Statistical advice was taken prior to the study being undertaken and 500 was considered to be a suitable number of patients for statistical analysis. The time lost from work was calculated using the median due to a high percentage of patients with 0.0 hours lost. The χ^2 test was used to indicate the statistical difference between the number of patients wearing eye protection when carrying out various activities. The Mann-Whitney test was used to show whether the self employed group took less time off work than those in employment.

Results

During the 5 month study period a total of 504 patients attended the department with corneal foreign body injuries. Of these, 496 were male and eight female. The mean age was 35 years for males and 36 years for females. The age range of male patients fell between 6 and 75 years (Table 1).

The greatest number of patients took no time off work and only 37 patients lost more than 12 hours (Table 2). The figures show a true representation of hours lost from work for they include both the time spent in the casualty department and time for travelling to and from the hospital. There was no significant difference in the time lost from work between the self employed and employee groups.

University of
Southampton,
Southampton Eye
Hospital

M M Alexander
J D A MacLeod
N F Hall
A R Elkington

Correspondence to:
Ms M Alexander, Research
Sister, Southampton Eye
Hospital, Wilton Avenue,
Southampton SO9 4XW.

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Table 1 Age range of patients

Age range	Number
Male	
6-10	5
11-15	1
16-20	35
21-25	65
26-30	84
31-35	72
36-40	69
41-45	65
46-50	33
51-55	32
56-60	16
61-65	9
66-70	2
71-75	1
Female	
20-25	1
26-30	1
31-35	3
36-40	1
46-50	1
55-60	1

Table 4 Comparison of eye protection worn in work and home injuries (total number of patients 314)

	Work	Home
Wearing goggles	82	5
Wearing specs	25	2
No protection	165	35

Table 2 Hours lost from work (total number of patients 407)*

Time lost (hours)	Number of patients	% of total
0	148	36.3
>1<2	21	5.1
>2<3	55	13.5
4	47	11.5
6	5	1.2
8	87	21.3
12	7	1.7
16	26	6.4
24	4	0.3
32	2	0.5
36	1	0.2
40	2	0.5
48	1	0.2
80	1	0.2

* 97 patients were unable to be contacted.

Table 3 Hours lost from work in different activities

Type of activity	No. of patients	Median	Range of hours lost
Under vehicles	24	4	0-24
Other metalwork	24	4	0-16
Unknown	75	4	0-16
Drilling	28	3.5	0-80
Welding	22	3.5	0-40
Grinding	67	3	0-32
Hammering	12	2	0-36
Sanding/sawing	12	2	0-12
Near machinery	22	2	0-16
Misc. industrial	44	2	0-24
Windblown	47	1	0-40
Leisure	29	0	0-32

The median time lost from work by 407 patients was 4 hours (Table 3); 148 patients (30%) presented to the department out of working hours.

The majority of injuries occurred at work and most of the patients in this group did not wear any form of eye protection (Table 4).

The largest group was of patients who were unaware of how the foreign body entered the eye; grinding was responsible for the second largest number of injuries (Table 5).

The categories of activities and the number of patients who had protected and unprotected eyes

Table 5 Activities at time of injury

Type of activity	No. of patients
Unknown	98
Grinding	89
Windblown	58
Miscellaneous industrial	51
Leisure	41
Drilling	30
Welding	28
Working near machinery	27
Other metalwork	24
On or under vehicles	21
Hammering	14
Sanding and sawing	11
Total number of patients	492

There was no information regarding activities of 12 patients.

Table 6 Comparison of eye protection worn in different activities

Activity	Protection worn	No protection	Unknown
Grinding	61	22	6
Windblown	5	36	17
Miscellaneous industrial	14	30	7
Leisure	3	22	7
Drilling	6	24	0
Welding	21	5	2
Near machinery	3	21	3
Other metalwork	8	15	1
On/under vehicles	5	22	0
Hammering	1	13	0
Sanding/sawing	6	8	1

in each group are shown in Table 6. A statistically significantly ($p < 0.05$) larger number of patients engaged in grinding and welding wore eye protection compared with those working on or under vehicles.

When possible the types of foreign body removed were identified and recorded. There was a predominance of metallic substances accounting for 56% of the total (unidentified types 32%, wood 2.5%, brickdust 2.5%, paint 2%, insects 1.5%, vegetable matter 1.5%, grit 1%, and dust 1%).

Attempts to telephone patients proved time-consuming and not altogether successful. The following were the reasons for failure to contact patients: 62 had no telephone, 15 numbers were unobtainable, nine no reply (after three attempts), eight patients were unwilling to participate in the study, two had moved away from the area and there was one wrong number recorded.

Discussion

A study by Vernon³ at the Bristol Eye Hospital showed that 33% of the cases of trauma were due to corneal foreign body injuries and an earlier study carried out in this department showed that corneal foreign body injuries were responsible for 26% of the total trauma attendances.² We initially assumed that there would be a high proportion of patients losing a considerable amount of time from their employment. It was therefore surprising to discover that the largest group of patients took no time off work and only a few patients took more than one full working day. Consequently we do not accept the assumption made in the study carried out at Moorfields Eye Hospital that patients take 2 days off work because of their injury.⁴ Many of our patients indicated that it was more convenient for them to visit casualty out of working hours. Several patients pointed out that the reason they did not lose time from work was because their employers arranged alternative work for them until their vision had recovered. A number of patients in the self employed group admitted returning to work immediately after treatment but resumed a more office based sedentary type of role as opposed to a skill which required 'normal' vision.

This survey shows a predominance of young men at work among the patients studied and it is at this group that preventive measures should be aimed. Our results give cause for concern over the injuries which occur in spite of eye protection being worn at the time of injury (as illustrated by those carrying out grinding – see Table 5). This leads us to question both the effectiveness of protective wear and also whether the patients carry out the instructions and guidelines for their use. Harker *et al*¹ stated that injuries are preventable by using the appropriate type of protection but clearly the number of injuries occurring while the eye is apparently protected shows a need for the reinvestigation of the design and suitability of protective wear. Several patients in the miscellaneous industrial activity group mentioned that their injury occurred during the removal of their goggles or spectacles which led

to particles dropping off their hair into their eyes. This may indicate that some form of head cover may be required for certain tasks in addition to the eyes being protected. We agree with the comments of others⁴ on the problems of protective devices misting up, being uncomfortable, and being easily scratched. Many patients said that protective wear remained effective for a relatively short time and that it was too expensive to keep replacing it. Only very few patients said that employers ensured that eye protection was worn.

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- 2 Jones NP, Hayward JM, Shaw PT, Claoué CMP, Elkington AR. Function of an ophthalmic 'accident and emergency' department: results of a six-month survey. *BMJ* 1986; **292**: 189-91.
- 3 Vernon SA. Analysis of all new cases seen in a busy regional centre ophthalmic casualty department during a 24 week period. *J R Soc Med* 1983; **76**: 279-82.
- 4 Liu C, Davison C, Cooling R. Eye protection in the metal working industry [Letter]. *BMJ* 1990; **301**: 1048.