

FIRST AID TREATMENT OF INDUSTRIAL EYE INJURIES

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First Aid Treatment in Collieries

THE ROSS Foundation published an account of new first aid treatment of eye injuries after six months trial at thirty collieries in Scotland.¹

The new treatment is the use of 10 per cent. Albuclid soluble eye drops (sodium sulphacetamide).

A refinement in the method of application was the substitution of a small rubber sponge for the hair brush. It was found experimentally that the sponge was much more efficient than the brush for the removal of foreign bodies from the cornea. The sponge should be cleaned in running tap water and shaken to dry before being replaced in the bottle, as the foreign body tends to adhere to the sponge. The danger of infection from its use in first aid treatment is negligible.

The results of the six months trial are here repeated for comparison with a further experience of twelve months at the same collieries under the same conditions.

Results After Six Months.

646 eye injuries were treated with Albuclid eye drops.

96.3 per cent. of the cases returned to work with no loss of time.

Results After A Further Twelve Months.

1,832 eye injuries were treated with Albuclid eye drops.

95.86 per cent. of the cases returned to work with no loss of time.

The satisfactory results already published have therefore been confirmed for coal miners, as there is no significant difference in the loss of working time.

At first sight there appeared to be a considerable increase in the incidence of injuries—1,832 in twelve months, as against 646 in six months.

These figures refer only to cases of eye injury treated at the ambulance room. The confidence of the men themselves in the new eye drops has resulted in a much greater number reporting at once for treatment, whereas they had previously been very lax about doing so.

At one colliery, however, 28 men were paid compensation for eye injuries during the year, and none of these men reported at the ambulance room. The manager of this colliery has displayed notices stating that eye injuries treated without delay showed 100 per cent. successes with no loss of time.

During the twelve months under review 54 injuries did not receive first aid treatment, all were paid compensation, and 13 were admitted to hospital with ulcer of the cornea. This is only 2·3 per cent. of the total injuries, but these cases represent a loss of working time of over four years.

In parenthesis it is justifiable to mention a method of eye protection in use at one colliery where only 15 minor injuries were reported.

Where the pick is used on coal liable to splinter, a face screen is worn made of perforated zinc. This shield has the great merit of simplicity, it does not interfere with the field of vision, and there is no difficulty in persuading the men to use it. Sheets of perforated zinc are cut to convenient size, the edges are bound with tape, and the shield is fixed to the hat with a loop.

The prejudice against the use of goggles is well known, and this shield might with advantage be adopted as an efficient substitute.

First Aid Treatment in Factories

The efficacy of the treatment in preventing infection in collieries was so evident that it was important to encourage its use in the wider field of industry in general.

Thirty factories were selected for trial by H.M. Medical Inspector of Factories in Scotland. These included a variety of manufacturing processes, and a medical officer was available to supervise the treatment and the keeping of records.

Engineering was largely represented, chiefly iron and steel works. The other industries were chemical works, including explosives and synthetic products, shipbuilding, rubber and tobacco factories.

All the works were visited after six months trial, and the results are summarised as follows :—

Results After Six Months Treatment.

The total number of employees was 121,775.

11,953 eye injuries were treated.

98·87 per cent. of the cases returned to work with no loss of time.

136 employees were off work on account of eye injury.

1,010 days of working time were lost.

7·4 was the average number of days lost.

Complete records of employees off work on account of eye injury before the introduction of the new treatment are not available, but it is generally recognised that there has been a decided saving of working time. The present percentage of only 1.13 off work is in any case a very gratifying record.

The following table gives the rate of eye injuries under the various industries:—

Industry	Employees	Injuries	Rate per annum
Shipbuilding ...	14,605	3,216	44 per cent.
Engineering ...	56,251	7,145	27 „ „
Chemicals ...	22,370	1,449	13 „ „
Rubber ...	3,549	97	5.4 per cent.
Dock Labourers	24,000	46	—
Tobacco ...	1,000	Nil	—
Totals ...	121,775	11,953	—

The number of eye injuries shown for dock labourers gives an entirely false impression because many men attended their panel doctors, and there are no records of these cases. Conditions in the docks will be greatly improved in the near future as six modern First Aid Rooms are under construction.

The high rate of injuries per annum, particularly in shipbuilding, is disquieting. Welder's flash is very common. This is generally caused by the electric arc of a near neighbour when individual protection is temporarily removed, and it is difficult to prevent in shipyards where many welders are operating at the same time.

In engineering, the safety measures for protection of the eyes are adequate, but they are not always used. Attention may be drawn to one ingenious device to prevent carelessness. The glass shield covering the abrasion wheel is frequently turned back to give a better view. The Safety Engineer fixed an electric filament lamp to the under side of the frame of the shield, with a reflector to protect the eyes from glare. This proved to be an

absolute safeguard, as the workman could not see what he was doing unless the safety glass was in its correct position.

Tobacco manufacture has been included to show that 1,000 employees experienced no eye injury in six months.

In the factories visited, the first aid arrangements leave nothing to be desired, and the management is keenly interested in treatment and the prevention of injury. First Aid Rooms are generously provided with modern fittings and surgical equipment, and the nursing staff are highly trained.

It is satisfactory to find that this welfare is appreciated by the employees, and they normally report for treatment without delay after injury,

The problem of the unskilled removal of a foreign body from the cornea is not yet completely solved however. A typical example is an old boiler scaler who is recognised as an expert in the use of his tongue for the purpose, and if that fails, he resorts to the well chewed end of a match.

Causes of Injury. The great majority of injuries were caused by a fragment of steel or iron in the cornea, but brass, copper, aluminium and gunmetal also played their part. Hot metal was relatively much less common than cold metal.

Next in importance to metal fragments were foreign bodies from abrasive wheels. In one factory manufacturing explosives, cordite was the prevailing foreign body.

Burns from hydrochloric, sulphuric and nitric acids and from caustic soda were common in chemical factories, and a few cases are included of conjunctivitis from fulminate of mercury. Welder's flash usually occurs where a group of men work in close proximity.

These causes of injury are what would be expected from the works involved, and statistics on the subject depend upon the distribution of industry.

In the Glasgow area, where engineering works predominate, Garrow's statistical analysis of 1,000 cases of eye injury admitted to the Western Infirmary showed that 70.7 per cent. were occupational in origin; 34.3 per cent. occurred in metal workers, and 17.3 per cent. in coal miners.²

In the Edinburgh area, where coal mining is the chief industry, 66.8 per cent. of all traumatic ulcers of the cornea occurred in miners.³

At the Royal Eye Hospital, London, situated in a highly industrialised area, Minton reported that the engineering and metal trades were responsible for about 80 per cent. of all industrial eye injuries, and that about 50 per cent. of these are sustained while grinding on emery wheels.⁴

Summary

This report deals with 2,478 eye injuries in 30 collieries in Scotland extending over a period of eighteen months, and 11,953 eye injuries in 30 factories in Scotland in six months.

First aid treatment was essentially the use of 10 per cent. albugin soluble (sodium sulphacetamide) as eye drops.

Of the total injuries in collieries, 96 per cent. returned to work with no loss of working time.

In factories and shipyards, there was no loss of working time in 98.87 per cent. of the cases.

These eye drops have already been recommended by the Ministry of Fuel and Power for use as first aid treatment in Collieries throughout the country.

The excellent results after six months trial in factories fully justify the recommendation that the new eye drops be adopted in all forms of industry where there is any danger of injury to the eyes.

REFERENCES

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- (2) GARROW, ALEXANDER.—A Statistical Enquiry into 1,000 Cases of Eye Injury. *Brit. Jl. Ophthalm.*, February, 1923.
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A NOTE ON IRIDENCELEISIS

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THE operation of iridencleisis has in the past fifteen or twenty years gradually gained popularity for the treatment of glaucoma and, in some parts, has come to be preferred to trephining in the majority of cases.

It is in fact at the request of an enthusiastic convert to this operation that I offer this short note on a modification of the classical technique.

Perhaps I should first make it plain that iridencleisis finds its best application, in common with all the fistula operations, in cases of non-congestive glaucoma, either chronic or sub-acute: in acute congestive glaucoma all manipulations of the iris or ciliary body are contra-indicated if other procedures are possible. Secondly the usual technique which I adopt for iridencleisis is the total section