The red eye: a general practice survey

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SUMMARY. A postal questionnaire was sent to all general practitioners registered in the United Kingdom enquiring about their experience, practice and attitudes regarding the red eye. Of the 31 500 questionnaires sent out 8742 (28%) were returned. The doctors demonstrated a high level of anxiety about this condition combined with a low level of investigation. There was wide variation in the treatment of choice for non-specific conjunctivitis, with 10% of doctors choosing a steroid containing product. Diagnostic and therapeutic activity were more closely associated with the age of the doctor than with experience of ophthalmology. Further training at undergraduate or postgraduate level for general practice ophthalmology appears desirable.

Introduction

THE red eye is a common condition. Reports suggest that a typical general practitioner with 2000 patients might expect to see about 40 cases of conjunctivitis each year, the most frequently diagnosed cause of the red eye.[1,2] Other causes are much less common — the typical general practitioner might expect to see one case of iritis each year and one case of glaucoma every two years — but accurate diagnosis is essential as early treatment might avoid permanent loss of vision.

In 1984 the annual cost of prescribing eye preparations in England alone was in excess of £13 million,[3] the largest group of drugs prescribed being topical antibiotics. As with diagnosis, it is important for the general practitioner to treat the rare but important causes of red eye correctly, as inappropriate preparations may produce further damage, for example the effect of steroid preparations on dendritic ulcers. A recent survey of those attending an eye casualty department who had previously been treated with steroid preparations by their general practitioner[4] found a high level of misdiagnosis and inappropriate treatment in this group and reported that in 77% of the cases, treatment with steroids was not indicated. Following a survey of ophthalmologists, it has been suggested that inappropriate steroid treatment of dendritic ulcers by general practitioners is responsible for some 750 visually handicapped eyes each year.[5] Such studies have emphasized the ophthalmologists' view that steroid preparations should not be used without specialist advice.[6]

These concerns about diagnosis and treatment are likely to make a consultation for the red eye a worrying experience for the general practitioner, especially given the relative lack of curriculum time given to ophthalmology in both undergraduate medical education and vocational training for general practice.

Little is known about how general practitioners currently investigate, diagnose and treat cases of the red eye, the majority of which are never seen in hospital. The aim of this study was to determine the following: (1) how commonly the red eye presented to general practitioners during one week in July 1984; (2) what diagnoses general practitioners made; (3) what investigations general practitioners performed; (4) what treatments were prescribed; and (5) general practitioners' confidence in their treatment.

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Method

In July 1984 a postal questionnaire was sent to all general practitioners registered as principals in the UK together with a reply-paid envelope. No reminders were sent.

The questionnaire asked how many patients with the red eye the doctors had seen in the preceding week; what they considered to be the most likely diagnosis at that time of year; how they would normally investigate an uncomplicated red eye; and what would be their first-line treatment for infective conjunctivitis, allergic conjunctivitis and non-specific conjunctivitis. The questions were mainly closed.

The doctors were asked to provide their age and sex and details of their training. They were also asked if they had any special experience or interest in ophthalmology and what their attitude was towards the management of eye problems. This question was presented as a set of options and the respondents were asked to tick one box.

The influence of the doctors' age and their experience of ophthalmology on their diagnosis, investigation and treatment was examined.

Results

Response rate

Of the 31 500 questionnaires sent out, 8742 were returned (28% response rate). A comparison of the age and sex distribution of respondents and all registered UK general practitioners revealed some over-representation of younger general practitioners among the respondents, but a representative distribution of male and female doctors.

Frequency of the condition

The 8213 respondents who answered this question had seen a median of three to four patients with a red eye in the preceding week. Eight per cent of the doctors reported having seen no such cases, and 4% reported seeing 10 or more.

Diagnoses made

From the possible diagnoses given in the questionnaire 59% of the 8302 respondents to this question thought allergic conjunctivitis the most likely diagnosis, 27% bacterial conjunctivitis and 11% viral conjunctivitis.

It was found that younger doctors were more likely to diagnose allergic disease, and older doctors to diagnose bacterial disease. Viral conjunctivitis was also a diagnosis more frequently made by younger doctors (Table 1).

Table 1. Percentage of doctors giving most likely diagnosis of red eye by age in years (total n = 8302).

	Age (years)			
Diagnosis	⩽30 (n = 1074)	31–44 (n = 3760)	45–64 (n = 3142)	65+ (n = 326)
Allergic conjunctivitis	60.0	61.2	55.8	50.6
Bacterial conjunctivitis	22.6	24.0	30.8	31.6
Viral conjunctivitis	14.5	12.1	9.3	11.0
Other	2.9	2.7	4.1	6.8

χ^2 = 98.51. 9 df. $P<0.01$.

Investigations

The 8306 respondents to this question indicated 'always', 'usually', sometimes', 'rarely', or 'never' for each of the investigations listed. Almost all of the respondents (99%) stated that they 'always' made a superficial examination of the eye; 30% always everted the lid although 1% never did this. Higher percentages of respondents never performed other aspects of examination — 7% claimed that they never tested visual acuity, 17% never used fluorescein stain, 20% never tested visual fields, 20% never took a swab from a red eye, and 95% never used a slit lamp.

The number of doctors performing fluorescein staining and testing of visual acuity and fields decreased with increasing age. Swabbing showed a less consistent trend and use of the slit lamp showed the opposite trend (Table 2).

Treatment

The 8270 respondents to this question gave their first line treatment for the three conditions from a list of eye preparations given in the questionnaire. For infective conjunctivitis the top three choices were chloramphenicol drops (68% of respondents), chloramphenicol ointment (25%) and 'other antibiotic' (4%). Forty-eight doctors (0.6%) chose a combined antibiotic and steroid preparation as their first line treatment for this condition. For allergic conjunctivitis the first choice of treatment was sodium cromoglycate drops in 57% of cases, Otrivine-antistin (Zyma) in 31%, and a combined antibiotic and steroid preparation in 3%. For non-specific conjunctivitis, a condition which was not further defined, there was a wide choice of first line treatments. However, 10% of respondents chose either a steroid or a combined antibiotic and steroid preparation.

Table 2. Percentage of doctors never performing investigation by age in years (total $n = 8306$).

	Age (years)				
Investigation	⩽30 ($n=1076$)	30–44 ($n=3748$)	45–64 ($n=3153$)	65+ ($n=329$)	
Eversion of lid	*1.1*	*1.2*	*0.8*	*1.2*	*NS*
Visual acuity	*3.8*	*6.2*	*8.6*	*15.8*	*P*<0.01
Fluorescein stain	*9.0*	*13.4*	*20.8*	*36.2*	*P*<0.01
Visual fields	*17.0*	*19.7*	*21.3*	*30.4*	*P*<0.01
Swab	*21.6*	*18.2*	*20.2*	*28.5*	*P*<0.01
Slit lamp	*95.6*	*95.9*	*94.4*	*93.6*	*P*<0.05

Table 3. Percentage of doctors giving treatment of choice for allergic conjunctivitis by age in years (total $n = 8270$).

	Age (years)			
Treatment	⩽30 ($n=1071$)	31–44 ($n=3749$)	45–64 ($n=3125$)	65+ ($n=325$)
Sodium cromoglycate	*61.6*	*57.0*	*54.6*	*49.8*
'Otrivine-antistin'	*30.1*	*31.5*	*31.5*	*29.5*
Steroid drops	*2.9*	*4.6*	*6.3*	*7.1*
Antibiotic–steroid treatment	*1.0*	*2.1*	*4.0*	*6.2*
Other	*4.4*	*4.8*	*3.6*	*7.7*

$\chi^2 = 94.6$. 12 df. $P<0.01$.

For infective conjunctivitis, older doctors were more likely to use an antibiotic other than chloramphenicol than younger doctors (6% of those aged 45 years and over chose an antibiotic other than chloramphenicol compared with 3% of those aged less than 45 years). Sodium cromoglycate was chosen relatively less frequently for allergic conditions with increasing age of doctors and steroid or antibiotic/steroid preparations were chosen relatively more frequently (Table 3).

Experience of ophthalmology

Six per cent of the 8279 respondents to this question had received extra experience of ophthalmology by working in an eye department. An additional 4% claimed to have a special interest in the subject, and another 12% said they were confident about eyes. The majority (68%) admitted that they had 'some uncertainties about eyes', and 10% affirmed the statement 'eyes scare me stiff'.

Doctors in each of these groups responded similarly to the question about diagnosis. Those who claimed to be 'scared stiff' were slightly less likely to perform certain investigations, including fluorescein staining, visual field testing, swabbing and slit lamp examination, although, except for the latter, the differences were not marked. Similarly, choice of treatment did not differ markedly between the groups.

Discussion

It is known that questionnaires from a remote and unfamiliar source are less likely to be returned than those from a familiar source and this may explain the low response rate (28%) obtained in this study. Nevertheless this study reports the views and experience of 8742 doctors, representing over a quarter of all general practitioners in the UK. It is encouraging that the age and sex characteristics of respondents differed little from national data although it is not known how far the respondents are representative of general practitioners in their views on the red eye.

Two main clinical issues were raised by the questionnaire: first, appropriate investigation either to manage the conjunctivitis or to exclude more sinister causes of the symptom and secondly the treatment and differential diagnosis of conjunctivitis. Perhaps the most disturbing result of this survey was the low level of investigation of the red eye undertaken by some general practitioners. While it is difficult to be sure whether certain investigations should be performed usually, sometimes or rarely, the high number of general practitioners who reported never doing certain investigations was noteworthy. While some of these investigations require special skill or equipment, the testing of visual acuity (never done by 7% of respondents), fluorescein staining (never done by 17%) and visual field testing (never done by 20%) are relatively simple office procedures which one would expect to be taught at an undergraduate level. It would be interesting to know whether it is lack of experience, time or faith in the procedure which results in the general practitioner never performing these tests.

As the study was performed in July, it is not surprising that at that time the most common reason for the red eye was thought to be allergic conjunctivitis. There was strong agreement about the first line treatment for infective conjunctivitis, 93% of the responders choosing chloramphenicol drops or ointment. There was, however, less agreement about the treatment for allergic conjunctivitis with older general practitioners in particular choosing a wide range of treatments (Table 3). It was noticeable that the age of the doctors rather than their reported expertise in ophthalmology was associated with their diagnostic and therapeutic behaviour.

General practice usage of steroid preparations should be further investigated. It seems that some general practitioners do not accept that such products should only be used after specialist consultation. It is particularly noteworthy that 10% of respondents chose these preparations as the first line treatment for non-specific conjunctivitis. While hospital based studies may help to illustrate problems of general practitioner management, it is only through general practice based research in which all consultations, including the majority not reaching hospital, can be studied, that valid conclusions about management can be made.

It is difficult to imagine that 10% of general practitioners would admit to being 'scared stiff' of any other medical specialty. This together with the low level of examination and investigation and the possibility of inappropriate treatment, suggests that, at least in the past, there has been a real gap in education in this area.

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