

Management of ophthalmic disease in general practice

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SUMMARY. A study was undertaken to investigate the management of ophthalmic conditions in general practice in order to identify areas requiring education and training input. Management of patients with eye disease presenting to 17 Nottingham general practitioners was examined over a 12-month period. Of all patients registered with the participating doctors, 4% presented with eye problems, accounting for 1.5% of all general practice consultations. Children under five years of age had the highest consultation rates, female patients having higher consultation rates than male patients in all age groups. Infective conjunctivitis was responsible for 41% of consultations about eye problems and allergic conjunctivitis for a further 13%; 70% of consultations resulted in a prescription. Corticosteroids were prescribed in 3% of consultations for eye problems; this was considered inappropriate by the study ophthalmologist in over a third of these cases. Patients were referred for further management following 16% of consultations. Thirty nine per cent of referrals to the hospital ophthalmic service were either to an eye casualty department or requested an urgent clinic appointment.

While most eye problems are managed solely by general practitioners there is clearly a need for ophthalmic services that can rapidly provide a specialist opinion. However, most eye disease seen in general practice involves the external eye or anterior segment, and the diagnosis may be confidently made using basic ophthalmic history taking and examination skills with non-specialist equipment. The acquisition of these skills should be emphasized at undergraduate level and built upon in later years in postgraduate training.

Keywords: eye disorders; vision disorders; diagnosis; management of disease; consultation rates; referral patterns.

Introduction

MOST eye disease is presented to and managed solely by general practitioners.^{1,2} Training in ophthalmology is given little time in the undergraduate curriculum and since such training is hospital based it may not be relevant to the needs of future general practitioners. Few vocational trainees in general practice work in hospital ophthalmic training posts, although some

schemes include ophthalmic teaching in their day release programme. It is not surprising, therefore, that most general practitioners feel anxious when patients present with eye disease.³

Dart⁴ and McDonnell² examined patients with eye disease presenting to general practitioners in London. Dart also attempted, albeit in a small sample, to examine general practitioners' accuracy in diagnosing ophthalmic conditions.⁴ While giving useful insight into this aspect of ophthalmology, both studies ran for only three months and are thus subject to bias in the sample of eye diseases seen, owing to the epidemic and seasonal nature of common acute ophthalmic diseases.

This study aimed to investigate the current management of ophthalmic conditions in general practice and to identify areas where undergraduate and postgraduate education and general practitioner vocational training schemes should be targeted. It is also hoped that the data presented will provide a useful reference for general practitioners wishing to audit their own ophthalmic practices.

Method

All general practices in the west of Nottingham were invited by letter to participate in a community based study of eye problems. Those practices responding positively were approached personally with further details. To enable calculation of the denominator population, all doctors in a practice had to agree to participate for the practice to be enrolled in the study.

General practitioners were asked to complete an encounter sheet for each surgery consultation or home visit involving eye problems for the complete 12-month period 1 March 1989 to 28 February 1990. The encounter sheet asked for demographic details, extent of examination including whether visual acuity was checked or fluorescein stain used, and for details of diagnosis, investigation and management. As part of a larger epidemiologically based study, the method and results of which are described elsewhere,^{5,6} all patients considered by their general practitioner to have new or newly recurrent ophthalmic disease were invited to see the study ophthalmologist (J S) for assessment of their presenting condition. In 78% of consultations the offer was accepted.⁵

Completeness of data recording by the general practitioners was checked at the end of the study by randomly choosing one week from throughout the study period for each doctor and checking the notes for all consultations held during that week by that doctor. The doctors were not aware which weeks had been chosen for the checks.

The total number of consultations (surgery consultations and home visits) for all problems during the 12-month study period was estimated for each practitioner by averaging the number of consultations over three randomly chosen weeks and multiplying this value by 46 (allowing for six weeks annual leave).

Family health services authority data were used to determine the combined practice list size of the study practices. At the midpoint of the study this totalled 36 018 patients (for the practices completing the study), from a broad spectrum of social classes and ethnic groups.

Data were analysed using SPSSX (the statistical package for the social sciences) on the mainframe computer at the University of Nottingham.

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Results

Study practices

Fourteen of the 25 practices in the study area (56%) responded favourably to the initial letter inviting participation in the study. One of the 14 practices was not approached because it was due to split into two separate practices during the study period, one of these falling outside of the study area. Twelve of the remaining 13 practices agreed to participate when approached with further details of the study (in one practice one partner declined to participate).

Twenty three doctors in the 12 practices began the study; 17 doctors in seven practices completed the study (health problems among two doctors caused two practices to be withdrawn and three single handed practices repeatedly failed to follow the protocol — data from these five practices were excluded from the analysis). None of the doctors recruited into the study had worked in an ophthalmology department since graduation. Those practices completing the study had patients in a broad range of social classes.

Completeness of data recording

The retrospective check of the notes from all consultations held during randomly chosen weeks for 16 of the 17 general practitioners completing the study revealed 40 ophthalmic consultations. Nine of these had not been recorded — three cases of infective conjunctivitis, two of allergic conjunctivitis and four consultations for repeat prescriptions for medications for tear film disorders or glaucoma. As has been reported before the degree of under-reporting was thus 22.5% (95% confidence interval 9.6% to 35.4%).⁶ One practitioner did not operate an appointment system and it was impossible to identify patients who had consulted this doctor in any week chosen retrospectively.

Consultation rates

During the 12 months of the study 1577 patients in the seven practices (4.4% of the study population of 36 018) consulted their general practitioner with eye problems. The total number of consultations for eye problems was 1771 (49.2 per 1000 population per year) — 1630 consultations (45.3 per 1000 population per year) were for new or newly recurrent ophthalmic disease and the remainder were follow-up appointments.

The total number of general practitioner consultations for all problems over the study period was estimated to be 120 000 in the seven practices. Eye problems were thus responsible for 1.5% of contacts (no adjustment has been made for under-recording).

The highest consultation rates were seen in the youngest and oldest age groups with the highest rate in under five year olds (Table 1). Female patients had significantly higher consultation rates than male patients overall, owing to significantly higher consultation rates by female patients in the age groups between 15 and 74 years. The greatest sex difference in consultation rates was found in the 15–29 years age group.

Investigations

Visual acuity was checked in 9.3% of the consultations for eye problems (164/1771) and fluorescein stain used in 1.1% (19/1771). Blood pressure was measured in response to ophthalmic symptoms or signs in 19 cases (1.1%) and urine tested in seven (0.4%). Eye swabs were taken during 21 consultations (1.2%) — for detection of bacteria (13), chlamydia (one), both bacteria and chlamydia (six) and type unspecified (one). Blood samples were taken during 11 consultations (0.6%) — three samples were sent for a full blood count, five for erythrocyte sedi-

Table 1. Age and sex specific consultation rates for eye problems.

Age (years) ^a	No. of consultations per 1000 patients per year ^b	
	Male patients	Female patients
0–4 (<i>n</i> = 1027/996)	145.1	150.6
5–14 (<i>n</i> = 1975/1946)	48.6	46.2
15–29 (<i>n</i> = 4098/4048)	21.0	46.7***
30–44 (<i>n</i> = 3659/3517)	27.6	41.8***
45–59 (<i>n</i> = 2977/2868)	24.9	47.8***
60–74 (<i>n</i> = 2766/3299)	43.7	59.7***
75+ (<i>n</i> = 988/1846)	61.7	72.0
All (<i>n</i> = 17 490/18 520)	39.3	56.3***

n = total number of male/female patients in study population in age group. ^aData missing for eight patients. ^bData missing for 40 consultations. ****P* < 0.001 for male versus female patients.

mentation rate determination, five for glucose level, one for thyroid function tests, one for levels of urea and electrolytes, one for vitamin B₁₂ level and one for folic acid level. One patient was sent for orbital x-ray examination.

Diagnoses

The conditions diagnosed by the general practitioner at the 1630 consultations for new or newly recurrent eye problems are shown in Table 2. The general practitioners diagnosed a total of 1751 conditions in the 1630 consultations. Inflammatory eye disease accounted for over half of the consultations. Infective conjunctivitis was the largest contributor to this group. Only 17 traumatic conditions presented to the general practitioners (1.0%).

Treatments

Of the 1771 consultations, 1245 (70.3%) resulted in the prescription of one or more ophthalmic medications. The commonest preparations prescribed were topical antibiotics (846 consultations, 47.9%) of which chloramphenicol (710 consultations) was the largest single contributor. Drugs for the treatment of allergic conditions were the next largest group (402 consultations,

Table 2. Diagnoses made by general practitioners in patients presenting with new or newly recurrent eye problems.

Diagnosis	% of consultations ^a (<i>n</i> = 1630)
Infective conjunctivitis	41.1
Allergic conjunctivitis	12.6
Cataract	4.8
Tear film disorder	4.5
Blepharitis	4.5
Chalazion	3.3
Open-angle glaucoma/glaucoma suspected	2.3
Migraine (with eye symptoms)	2.3
Lacrimal passage obstruction	2.1
Stye	2.1
Allergic blepharitis	1.2
Macular disease	1.1
Anterior uveitis	0.9
Refractive problems	0.8
Other conditions	18.1
No abnormality detected	1.8
Unable to make a diagnosis	3.1

n = total number of consultations for new or newly recurrent eye problems. ^aMore than one diagnosis was sometimes made in one consultation, hence total >100%.

26.7%), the largest contributor to this group being sodium cromoglycate (155 consultations).

In the 670 cases where the general practitioner diagnosed infective conjunctivitis the following treatments were prescribed at the first visit: topical antibiotics (619, 92.4%), no treatment (39, 5.8%), combined corticosteroid-antibiotic preparations (12, 1.8%) and antiviral drugs (one, 0.1%) (one patient received more than one treatment). In the 206 cases where allergic conjunctivitis was diagnosed the following treatments were prescribed at the first visit: sodium cromoglycate (132, 64.1%), systemic antihistamines (44, 21.4%), no treatment (19, 9.2%), nasal sprays (15, 7.3%), corticosteroids (14, 6.8% — eye drops 12, oral steroids two), topical antibiotics (11, 5.3%) and topical antihistamines (eight, 3.9%) (37 patients received more than one treatment).

In all, corticosteroids were prescribed in 60 of the 1771 consultations (3.4%), mostly as corticosteroid-antibiotic combinations (45 consultations). The general practitioner diagnoses of the conditions for which topical corticosteroids were prescribed (57 consultations) were: allergic conjunctivitis (14 cases), infective conjunctivitis (14), lid eczema (six), allergic blepharitis (six), anterior uveitis (four), viral keratitis (three), entropion (two), episcleritis (two), no specific diagnosis made (two) and one case each of tear film disorder, sequelae to alkali burn, unspecified eye injury and open-angle glaucoma. Oral prednisolone was prescribed in three cases. Two were cases of allergic conjunctivitis associated with systemic allergic symptoms in the nose, throat and chest that had not been helped by systemic antihistamines. The third was an acute case of bells palsy.

In 21 of the 60 cases (35.0%) the use of corticosteroids was considered to be inappropriate by the study ophthalmologist based on the general practitioners' diagnosis. Forty two of the 60 patients prescribed a corticosteroid (70.0%) were also seen by the ophthalmologist — there was diagnostic agreement in only 12 of the 42 cases (28.6%).

Management

Most patients consulting their general practitioner with a new or newly recurrent eye problem were managed in a single visit (1538, 94.4% of 1630 consultations). Sixty nine patients received one follow-up visit and 17 patients were seen on two follow-up visits (maximum number of follow-up visits recorded was four). Of all 1771 consultations 291 (16.4%) resulted in referral for further management — 62 referrals to a hospital eye casualty department (3.5% of all consultations), 118 routine referrals to a hospital eye clinic (6.7%) and 31 urgent referrals to a hospital eye clinic (1.8%), 30 re-referrals to a hospital eye clinic (1.7%), 30 referrals to an optician (1.7%), 11 private referrals to an ophthalmologist (0.6%) and nine referrals to a hospital medical/neurology clinic (0.5%). Thus 252 of the 291 referrals (86.6%) were to an ophthalmologist. Of the 62 referrals to a hospital eye casualty department 10 cases had been given a diagnosis of infective conjunctivitis by the general practitioner, nine anterior uveitis and in eight cases a diagnosis had not been made (other diagnoses occurred less frequently). The most commonly stated reason for the 62 referrals to a hospital eye casualty department was so that a diagnosis could be made or confirmed (37, 59.7%); this included seven of the 10 referred cases diagnosed as infective conjunctivitis by the general practitioner. In the case of the routine referrals to hospital eye clinics, treatment was the most commonly stated reason (52/118, 44.1%).

Discussion

The general practitioners who completed this study are a self-selected group who may not be representative of all general practitioners initially approached. However, there is no reason why

their patients should not be a representative sample of the population in terms of the social class distribution in the study area.

The estimated annual consultation rate for eye problems reported here is slightly lower than that found by others.^{1,2,4,7} This may be a reflection of the under-recording of cases by general practitioners, a problem to which this study will have been more vulnerable because of its longer duration and the large number of general practitioners involved. Since the check on completeness of data recording was carried out after the study, no feedback about the level of under-reporting could be given to the doctors during the course of the study. The proximity of the study practices to an open access hospital eye casualty department may be an alternative explanation for the lower consultation rates for eye problems.

The most common diagnoses of acute ophthalmic diseases made by the general practitioners in this study are similar to those reported by others.^{1,2} Infective and allergic conjunctivitis, blepharitis and chalazion were the commonest acute disorders seen. The diagnoses of the unreported cases would suggest that the figures presented here underestimate the levels of infective and allergic conjunctivitis. A diagnosis of cataract or glaucoma was made in 5% and 2% of consultations for new or newly recurrent problems, respectively, a higher rate than found in McDonnell's study² but similar to the national morbidity statistics.¹ McDonnell attributed his finding to the youth of his study population compared with that of the population covered by the national morbidity statistics. The low level of consultations involving trauma seen in this and other studies^{2,4} is almost certainly explained by the proximity of a hospital eye casualty department.

The results of this study indicate that corticosteroids are still widely prescribed by general practitioners in the management of eye disease, often inappropriately. While some ophthalmologists argue that any initiation of topical steroids by general practitioners is inappropriate because of the devastating consequences of diagnostic errors,⁸⁻¹⁰ this stance is not universally held.¹¹ Until the advent of more universally effective non-steroidal anti-inflammatory medications and improvements in the accessibility of ophthalmologists the use of steroids by general practitioners in the management of eye disease is likely to result in further morbidity.

The referral rate in this study (16% of consultations) is similar to the overall rate of 17% for all conditions in the national morbidity statistics¹ and the 15% found in McDonnell's study of eye disease.²

A number of factors contribute to the lengthening waiting lists for appointments at ophthalmic outpatient departments. These include an increasing demand from an ageing population⁶ who expect higher levels of visual function than they would have done in the past and earlier intervention in many ophthalmic disorders.¹² Longer waiting times for clinic appointments may result in referral to an ophthalmic casualty department, if one is available, of cases which could not strictly be classified as an accident or an emergency. Of the 241 referrals to hospital ophthalmic departments in this study, 26% were to a hospital eye casualty department and a further 13% were requests for an urgent clinic appointment. Solutions to this problem could include creating ophthalmic primary care clinics either in a hospital setting or within the community and/or improving the diagnostic skills of general practitioners. The latter is supported by the finding that, despite infective conjunctivitis being the most frequent general practitioner diagnosis among cases referred to eye casualty (10/62), the main reason given for referral to a hospital eye casualty department was to ascertain the diagnosis (37/62 including seven of the 10 referred cases of infective conjunctivitis). This may reflect general practitioners' underlying uncertainty when

dealing with eye problems, alluded to in Wilson's study.³ Further education could help reduce this uncertainty and reduce unnecessary referrals.¹³

Hospital eye services might be more efficiently used if ophthalmic departments issued comprehensive guidelines to local general practitioners advising them on the types of cases appropriate for referral to the eye casualty department and eye clinics.

This study clearly shows that the majority of eye disease requiring treatment is managed by general practitioners with a limited range of medications. Most eye problems seen involved external eye or anterior segment disease and require no specialized equipment to make a diagnosis. Only a small proportion of eye disease seen in general practice is potentially sight threatening, requiring specialist attention.

With limited curriculum time allocated to ophthalmology,¹⁴ the primary aim of undergraduate teaching should be the acquisition of basic ophthalmic history taking and examination skills without the use of specialist equipment, and the application of these skills to ophthalmic conditions commonly seen in the community.⁴ Vocational training, continuing medical education and medical audit may all provide opportunities for building upon these basic skills in a manner appropriate to the area of ophthalmic interest of any given practitioner. The ability to identify and manage common conditions with confidence would facilitate recognition of signs indicative of the rarer, more serious conditions requiring specialist attention.

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