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Referral criteria
Action on cataracts

Age-related cataract constitutes the main surgical workload of eyecare services and the bulk of ophthalmic surgical waiting lists. Furthermore, national surveys have provided some limited evidence of unmet need for cataract surgery in the UK. In order to address these issues, the government has produced a document termed 'Action on Cataracts'[1].

ABDO has awarded this article 2 CET credits (LV).

The College of Optometrists has awarded this article 2 CET credits. There are 12 MCQs with a pass mark of 60%.

The document provides guidance about how services are organised and identifies where services can be made more effective, and how access to services can be improved. Such changes will undoubtedly have a significant impact on the role of the optometrist. The document can be accessed via www.doh.gov.uk/cataracts/, and an information pack is available from the Association of Optometrists.

The Action on Cataracts document[1] is not intended to be prescriptive, but contains suggestions about how the organisation of cataract surgery services could be changed in order to increase cataract surgery rates and reduce waiting times. The document focuses on organisational aspects rather than the clinical aspects of care, although of course, these issues are not completely separate. Pertinent to optometrists are the sections relating to the detection of disease, referral criteria and the education and counselling of patients. The pre-operative evaluation of cataract patients, follow-up, audit and outcome assessments are also discussed.

Summary of changes recommended in Action on Cataracts

Table 1 outlines the key points raised in the 'Action on Cataracts' document.

Table 1: SUMMARY

• 'Action on Cataracts' is a government document aimed at improving the delivery of cataract surgery services[1]
• Optometrists are being encouraged to take a greater clinical role in cataract referral
• Referrals should not be based simply on the presence of a cataract
• The decision to refer should include: The effect of the cataract on Quality of Life (QOL) Thorough ocular examination The patient's willingness to have surgery
• Referral policies and the potential role(s) of optometrists will vary according to local arrangements

- ***"Streamline the pathway of diagnosis and treatment"***
  The document suggests that there should be a "uniform" pathway for patients with similar needs. Agreed guidelines for referral are proposed as a way of ensuring that patients are managed appropriately. In line with this, optometrists may be encouraged to refer patients directly to ophthalmologists. In addition, the number of visits to the hospital could be reduced by confirmation of the diagnosis and pre-operative assessment at the same visit, coupled with a reduction in the amount of post-operative follow-up.

- ***"Perform high volume high quality surgery"***
  It is suggested that high volume surgery might be achieved by eliminating the obstacles and constraints which slow down a theatre list, for example, eliminating delays in the preparation of sterile equipment.

- ***"Provide high quality patient information"***
  The document proposes that patients should be given information about the whole treatment pathway, not just individual steps and this should be given to them at the beginning of the pathway.

- ***"Audit outcomes"***
  In order to assess the quality of care provided to patients, it is advised that the outcomes of cataract surgery should be audited, including the feedback obtained from patients.

Cataract referral

It is clearly stated in the Action on Cataracts document that the guidance is not intended to be prescriptive. It is recommended that agreement on referral guidelines should be reached locally between the local ophthalmology service, GPs and optometrists.

Direct referral by optometrists

Some local policy committees, e.g. Primary Care Groups (PCGs), may decide that it is permissible for an optometrist to refer directly to an ophthalmologist according to locally agreed protocols (including which hospital to refer to) using a standardised referral form. It is believed that a majority of GPs will accept the optometrist's judgement and refer the patient straight on to the ophthalmologist, so an extra visit to the GP may not add any significant value as regards the patient's visual status. However, the GP has an overall responsibility for the patient's healthcare and many GPs would wish to maintain their important role in co-ordinating the patient's care. Direct referral by the optometrist will save time for both patient and GP but it is important that the GP is kept fully informed. Therefore, it is suggested that a copy of the referral is sent to the GP so that additional information (such as medical and social information) can be sent on to the hospital where necessary. The PCG may also want to be aware of the referral for organisational reasons.

Referral criteria

Unfortunately, there is insufficient evidence in the scientific literature on which to base a comprehensive set of referral criteria. Below is a summary of the evidence that should inform 'best practice' regarding cataract referral.

Modern surgical techniques mean that it is no longer necessary to wait until a cataract is 'ripe', i.e. fully opaque before referring for surgery. Over the last two decades, there has been an increase in cataract surgery rates in the UK, which has paralleled changes in other industrialised countries. The change has coincided with the adoption of extracapsular cataract extraction and intraocular lens implantation. As a result, there has been a change in the clinical thresholds for surgery, with an increasing tendency for surgeons to perform surgery on cases with relatively good visual acuity (VA),[2-7] with less self-reported limitation in abilities,[6] and at older ages.[2,4,8] Thresholds may reduce further as phacoemulsification becomes increasingly popular.

Role of vision tests

Certain surgeons in the UK are prepared to perform cataract extraction on patients with visual acuities as good as 6/6 Snellen[9-13] and do not use other tests of vision[13], suggesting that

vision tests have a limited role in deciding who should have surgery. The most recent guidelines from the Royal College of Ophthalmologists suggest that patients should be referred if they have sufficient cataract to limit their quality of life (QOL), irrespective of Snellen acuity[14]. Therefore, asking about symptoms and a thorough slit-lamp examination of the lens through a dilated pupil, together with fundus examination may provide adequate information in many cases.

Diagnosing cataract

Vision tests cannot easily be used to confirm or exclude the presence of cataract **(Table 2)**. Any disease which interferes with foveal or neural function, or with the normal transparency of ocular structures may cause a reduction in Snellen VA. Similarly, a wide variety of ocular disorders may also cause contrast sensitivity loss[15] which limits the value of contrast sensitivity tests as a screening tool for cataract.

Glare is a well recognised symptom in cataract, but glare may be caused by other pathological opacities of the ocular media, such as corneal oedema or conditions leading to reduced uveal pigment. In addition, the commonly used glare testers are each subtly different and there is a lack of standardisation across techniques. Furthermore, neural factors may affect the accuracy of glare measurements. The variety of ocular disorders which may cause glare limits the usefulness of glare-testing as a means of screening for cataract[16,17]. That said, tests such as contrast sensitivity and glare sensitivity can provide additional information about vision in cases where the patient's symptoms appear to be disproportional to the standard of vision measured using high contrast VA (see previous CPD article).

TABLE 2: KEY Points: VISION TESTING

- Many ophthalmologists are prepared to offer cataract extraction at good levels of VA and do not use other tests of vision, suggesting that vision tests have a limited role in deciding who should have surgery
- Vision tests cannot be used in isolation to diagnose cataract. Nor can it be assumed that visual impairment is due to the easily recognised cataract morphologies unless a very detailed and thorough ocular examination has been performed
- Information about symptoms and quality of life will be most reliably obtained from the patient themselves, their relatives or carers. Vision testing in people with communication difficulties or in whom the ophthalmic history is suspected to be unreliable provides valuable information. Vision tests confirming the patient's description of their vision strengthen the case for cataract extraction.
- It is uncertain whether useful predictions can be made about the success of surgery, based on vision test results

It is well established that visual impairment in cataract cannot be described in terms of a single visual loss function[18]. Cataract may affect VA, contrast sensitivity, glare sensitivity, refractive status, colour vision, visual field, binocular status and may also give rise to symptoms which are not well described by any of these functions, for example, monocular diplopia. Vision tests are, as a rule, carefully designed to measure discrete modalities of vision. The choice of test is therefore problematic. A single test will not give an overall measure of vision and to evaluate every aspect of vision, a large battery of tests would be required. Even with such a battery, the clinician would remain uncertain as to the relative importance of each test to the individual. The importance of a given test may vary within and between individuals, depending on environments and activities. Due to the discordance between the results of various vision tests, good visual performance on a single test cannot be used to rule out the presence of visually impairing cataract. The working ranges of some test charts also need to be considered. For example, if a Snellen chart is 'truncated' at the 6/6 level, deterioration from 6/3 to 6/6 (a doubling of the visual angle) may go undetected.

Evaluation of symptoms, 'disabilities and handicaps'

The relationship between glare tests and self-reported glare symptoms in cataract cases appears to be weak[16,19-23]. Other cataract symptoms include haloes or rings around lights[24,25], multiple images (polyopia)[26,27], 'star-burst' effects[26] and 'rainbow' effects[28]. The relationship between these symptoms and vision tests remains poorly defined.

The correlation between high contrast VA and self-reported impairment using a variety of measures has been generally poor[29-33]. In reality, it is likely that visually dependent tasks are dependent on combinations of several visual functions[29,34,35]. It is uncertain which test of vision gives the most useful information about overall quality of vision or the need for cataract surgery. 'Handicap' (as defined by the World Health Organisation) refers to the psycho-social disadvantage resulting from poor vision and therefore cannot, by definition, be measured by vision tests.

Prediction of the outcomes of cataract surgery

'Patient centred outcomes' are those outcomes that directly measure the perceived benefit for the patient, for example, satisfaction with vision or self-reported problems with everyday activities.

Several studies have investigated the value of pre-operative high contrast acuity testing in the prediction of patient centred outcomes of cataract surgery and the results have been conflicting[25,36-41]. Other studies have examined the relationship of pre-operative contrast sensitivity testing to patient-centred outcomes of cataract surgery. For example, Adamsons et al (1993) reported that pre-operative logMAR acuity and Pelli-Robson scores were both associated with post-operative improvements in patients' perception of their vision[39,40]. However, Bellucci et al. (1995) reported that pre-operative glare sensitivity and contrast sensitivity were not significantly associated with the degree of post-operative self-reported improvement[42].

Other studies have examined the relationship between pre-operative glare testing and post-operative patient-centred outcomes of cataract surgery and have found little or no association between the results of glare-tests and self-reported improvement in vision following surgery[39,40,42].

Several methods have been developed for the assessment of 'potential vision' behind cataract, including the Amsler grid, entoptic tests, interferometry, hyperacuity tests and electro-physiological tests[43]. The ability of potential vision tests to predict patient-centred outcomes of cataract surgery requires investigation.

Monitoring cataract progression

Vision tests cannot easily be used to monitor the progression of cataract because deterioration in test results may be due to causes other than cataract. Even if a particular test suggests stability, deterioration may still have occurred in some other unmeasured aspect(s) of visual function. Monitoring by vision testing does not reliably inform about new visual symptoms or quality of life.

The limitations of vision tests also extend to refractive errors. For example, although it is recognised that nuclear sclerosis is associated with myopia, a change in refractive error cannot easily be used to decide when to refer. Indeed, some hypermetropic patients may welcome the myopic shift and so ultimately it will be the patient's QOL, rather than their refractive error that determines the need for referral.

Quality of Life (QOL)

There is growing awareness of the importance of QOL in judging the need for cataract surgery **(Table 3)**. The concept of QOL has been incorporated into statements about the aims of cataract management by eyecare professionals and researchers[44-46], and has been included in clinical guidelines for cataract surgery[47,48].

QOL assessment is an integral part of clinical decision making but is usually performed on an individual basis in a casual manner. Such informal questioning may result in biased judgements. Therefore, it may

TABLE 3: KEY Points: QOL Assessment

- In ophthalmic needs-assessment there is growing awareness of the importance of QOL and the limitations of measures of visual function such as high contrast VA
- QOL assessment should include not only the assessment of physical health, but also social and psychological well-being
- It is not sufficient to simply ask about visual symptoms (e.g. glare) or visual functions (e.g. recognising a face across the street) because an individual with visual impairment may find the particular symptoms or activities covered irrelevant to their own situation or may not be concerned by their impairment
- General questions, such as "Does your eyesight stop you doing the activities that you want to do?" may be more informative and less prejudicial than specific ones, e.g. about driving or employment

become necessary in the future to make a more standardised assessment.

QOL is taken to encompass all aspects of life, of which health is one of many parts. The term has become popularised and clichéd, featuring in political speeches and articles in the popular media. QOL has been variously defined as the extent to which pleasure and satisfaction have been obtained, the degree of satisfaction of human needs, happiness, feelings of control and coping, life satisfaction, morale, the realisation of a life plan or the difference between desired and actual circumstances.

Subjective indicators based on self-ratings of QOL have become more popular due to the recognition of the importance of how individuals feel, rather than how professionals think they ought to feel on the basis of clinical measurements. As QOL is a personal concept there is strong argument that QOL assessment should be based on patient-defined issues, rather than those defined by eyecare professionals.

Vision-related QOL (VR-QOL)

VR-QOL is not the same as visual function. For example, a person who is completely blind may still have a good QOL. It is well recognised that poor vision is for some people much more unpleasant than for others. A group of individuals with the same level of visual impairment may have widely varying levels of physical, social and emotional disturbance because of varying needs, attitudes and environments. Variation due to these factors will never be predicted accurately by taking clinical measurements (e.g. vision testing) regardless of the number of tests employed.

Any self-reported problem with vision may be a QOL issue. The range of possible issues is wide and may include loss of self esteem, vulnerability, loss of confidence, embarrassment, anger, difficulties with social interaction, communication, and relationships, being treated badly by others, loss of independence, depression and anxiety.

QOL measurement is of particular value when there is a poorly defined relationship between clinical measures and the patient's perceptions. Such is the situation in optometry/ophthalmology. Pioneering work in this area of research was performed by Bernth-Petersen[49] and now there are numerous vision questionnaires available which are based on visual symptoms and physical function. However, it is clear that assessing a few selected physical activities gives a grossly inadequate description of VR-QOL impairment[50]. Although the person's report of functioning provides important information, more general questions provide information regarding QOL[51]. Indeed, researchers have concluded that it may not be appropriate to require specific functional limitations as a precondition for cataract surgery and have suggested the use of more general questions[52].

Recently, the National Eye Institute Visual Function Questionnaire (NEI-VFQ)[53,54] has become available in the USA and the VCM1 questionnaire has been introduced in the UK **(Table 4)**. These questionnaires aim to cover a broader range of issues and thus provide a more balanced assessment of vision-related QOL.

TABLE 4: THE VCM1 Questionnaire

- The VCM1 is based upon patients' own definitions of vision-related QOL[50] and contains 10 broad, general questions referring to physical, social and psychological (vision-related) problems:

Embarrassment
Anger
Loneliness /isolation
Depression
Fear of deterioration in vision
Safety at home
Safety outside the home
Coping with everyday life
Inability to do preferred activities
Overall life-interference

- The VCM1 score correlates strongly with answers to a wide range of other questions about QOL issues such as mobility, reading and leisure
- Data on the reliability of postal and telephone administration is available[65]
- Population data should soon be available from three sites in the UK: Bristol, Sheffield and Wiltshire including more than 10 000 people. The results should provide an insight into VR-QOL in the general population
- The VCM1 is already in use in a range of research studies, including the Investigation of VR-QOL in macular disease, cataract, amblyopia, uveitis, myopia, hypermetropia, low-vision and the outcomes of various treatments. The questionnaire is also being used to evaluate the need for cataract surgery

Examination of the lens

Examination of the human ocular lens is necessary to detect the presence of opacities and is essential to the diagnosis of cataract. However, lens examination has received relatively little attention by researchers[55]. Posterior subcapsular, cortical and nuclear cataracts may cause visual impairment but there is a variety of other opacities that occur in the ageing lens such as anterior subcapsular opacity, vacuoles, waterclefts, coronary flakes, focal dots, retrodots and fibre-folds[28,56] some of which may have little or no effect on vision. Therefore, a careful examination of the lens through a dilated pupil at the slit lamp is needed to help distinguish visually impairing cataract from other opacities such as fibre folds, vacuoles and coronary flakes that may not affect vision. For the same reason, it is important not to overlook other causes of visual impairment.

Suitability for surgery

As a result of the availability of both general and local anaesthesia for cataract surgery, there are very few anaesthetic contraindications to elective surgery for age-related cataract. The relative contraindications to individual techniques are listed in the Guidelines of the Royal College of Ophthalmologists[48].

Willingness to have surgery

Willingness to have surgery is included as a referral criterion in the Action on Cataracts document. It is clearly stated in the document that the patient should have all the necessary information well before surgery enabling them to make informed decisions about their care. This implies that the optometrist may be required to give the patient sufficient information regarding surgery at the first visit including the risks involved. A list of information sources is provided in the document.

Using pooled data, Powe et al (1994) estimated that approximately 95% of eyes without other pre-existing eye conditions and 90% of all eyes achieve a post-operative best-corrected VA of 6/12 or better[57]. In the recent UK national cataract surgery survey (1997-1998), 92% of patients without other eye conditions and 77% of patients with other co-existing eye conditions achieved a final refracted acuity of 6/12 or better[58].

Major sight-threatening complications are infrequent and may not always result in complete loss of vision. The following complication frequencies were reported from pooled data by Powe et al (1994): angiographic cystoid macular oedema 3.5%, clinical cystoid macular oedema 1.4%, malposition/dislocation of intraocular lenses 1.1%, retinal detachment 0.7% and

bullous keratopathy 0.3%, endophthalmitis 0.13%. Less serious complications also occur infrequently, with the exception of posterior capsular opacification which occurs in up to 19.7% cases[57]. Further details can be obtained from the report of the outcomes of the UK national cataract surgery survey[58].

In contrast to the claims of 90% to 95% success rates from those who quote high contrast VA results, the self-reported outcomes are poorer. Where validated vision-specific questionnaires have been employed, the percentage of cases who report improvement range from 80-89%[25,37,59]. Those who report no change comprise 5-10% of cases and those reporting a deterioration comprise 5-7%[25,37,59].

Presence or absence of ocular co-morbidity

The term 'ocular co-morbidity' refers to co-existing eye conditions which may either cause visual impairment or may increase the risks of surgery. In the UK national cataract surgery survey, 72% of patients with age-related macular degeneration, 77% of patients with glaucoma, 68% of patients with diabetic retinopathy and 67% of patients with amblyopia achieved a final refracted acuity of 6/12 or better. The adverse effect of ocular co-morbidity on patient-centred outcomes is well recognised[25,36,38,60], although existing studies have tended to group various co-morbidities together for analysis. Further research is needed to quantify the risks of poorer outcomes and the magnitudes of the shortfalls in QOL benefits for specific co-morbidities. Ocular co-morbidity tends to either increase the risk of complications or reduce the scope for visual improvement, and is thus a relative contraindication to cataract surgery. However, some patients may still benefit from surgery and even though the anticipated benefit of cataract extraction may be small in the presence of other pathology, the surgeon and patient may still wish to proceed. Furthermore, it may be necessary in some cases to remove the cataract in order to assess and treat other conditions such as diabetic retinopathy. Referral in the presence of ocular co-morbidity will depend on the specific aspects of the case.

Second-eye surgery

Several studies have reported benefits from second eye surgery using patient-centred outcome measures[32,61-64]. The need for second-eye surgery should be determined in the same manner as for the first. The patient should be able to make an informed decision based upon their QOL and the anticipated risks and benefits of surgery. This is a preferable strategy to automatic referral for the second eye.

Conclusion

Redesigning the care pathway from the patient's view point and implementing best practice may lead to a benificial improvement in patient satisfaction with the cataract service.

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About the author

Andrew Frost is an ophthalmologist and Honorary Lecturer in ophthalmology at Bristol Eye Hospital.

Multiple choice questions

Referral Criteria - Action on Cataracts MCQs

Please note there is only one correct answer

1. The Action on Cataracts document makes which one of the following recommendations about cataract referral?
a. Optometrists should be able to make referrals with complete clinical freedom
b. General practitioners should be removed from the referral process
c. Referrals should be made with the agreement of the primary care group
d. National guidelines should be imposed upon optometrists

2. Which one of the following observations about visual acuity (VA) is correct?
a. VA has been confirmed to be a good predictor of the outcome of surgery
b. VA testing is a rapid means of confirming the presence of cataract
c. VA testing gives a good impression of the patient's disabilities
d. VA is not always reduced when a visually impairing cataract is present

3. Which one of the following observations about contrast sensitivity (CS) is correct?
a. CS testing provides information about vision within the limits of spatial resolution
b. CS is a good predictor of the outcome of surgery
c. CS testing is a reliable means of screening for cataract
d. CS testing gives a good impression of the patient's degree of handicap

4. Which one of the following observations about glare testing is correct?
a. Glare tests correlate well with glare symptoms
b. Glare tests are uniformly standardised
c. Glare sensitivity is a poor predictor of the outcome of surgery
d. Glare sensitivity is a specific test for light scattered by the lens

5. Which one of the following observations about quality of life is correct?
a. The aim of cataract surgery is to improve quality of life
b. Quality of life can be judged only with a very large battery of vision tests
c. Eyecare professionals are usually able to make accurate judgements about the patient's quality of life
d. QOL assessments should concentrate only on aspects of physical health

6. Which one of the following gives the best impression of the patient's quality of life?
a. Glare
b. Reading
c. Driving
d. The patient's own concerns

An answer return form is included in this issue. It should be completed and returned to: CPD Initiatives (c2983g), OT, Victoria House, 178–180 Fleet Road, Fleet, Hampshire, GU51 4DA by July 25, 2001.

Continued

Multiple choice questions - Referral Criteria - Action on cataracts MCQs

7. Which one of the following is correct about ocular examination?
a. Non-visually impairing lens opacities may be present in the visual axis
b. It is not necessary to dilate the pupils if the patient is going to be referred anyway
c. Fundal examination is irrelevant in identifying the source of glare symptoms
d. The appearance of the fundus is not important when deciding who to refer

8. Cataractous changes in the lens can confidently be diagnosed when which of the following are present?
a. Coronary flakes
b. Nuclear opalescence
c. Fibre folds
d. Vacuoles

9. Which one of the following instruments is the most suitable for assessing cataract?
a. Direct ophthalmoscope
b. Retinoscope
c. Slit lamp
d. Indirect ophthalmoscope

10. Which one of the following is the most common sight threatening complication of cataract surgery?
a. Retinal detachment
b. Malposition/dislocation of intraocular lens
c. Endophthalmitis
d. Angiographic cystoid macular oedema

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11. In the recent UK national cataract surgery survey, approximately what proportion of cataract patients without any other eye conditions achieved a best corrected VA of 6/12 or better?
a. 90%
b. 100%
c. 80%
d. 70%

12. Which one of the following aspects of cataract assessment is least important when making the decision whether to perform cataract surgery?
a. Quality of life
b. High contrast VA
c. Ocular examination
d. Willingness to undergo surgery

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