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CATARACT SURGICAL RATES

Cataract surgical rates: is there overprovision in certain areas?

John M Sparrow

Healthcare providers should ensure that cataract surgical rates are beneficial to all

Cataract surgery rates in developed countries have increased dramatically over the past two decades. In England, the crude surgical rate in 1990 was around 2/1000,[1] by 1997 this had risen to around 3/1000[2] and by 2005 peaked at around 6/1000,[3] an increase of close to 300% over 16 years. In Sweden, rates have been even higher; over a 9-year period, the demand for cataract surgery rose steadily from 4.5/1000 in 1992 to 7.3/1000 in 2000.[4] Encouraged by the ''Action on Cataract'' initiative in 2000, National Health Service units streamlined practice and massively increased surgical throughput. For a time, health policy became so obsessed by capacity building that fixed and travelling independent sector treatment centre facilities were set up irrespective of local need. Publicity and political hype far outstripped the actual capacity of these treatment centres, which contributed a mere 3% to national cataract surgical throughput. Inappropriate and politically enforced contracting at a local level, however, undermined a number of established high-quality ophthalmological units, illustrating a profound lack of insight and planning behind these politically driven initiatives. This surgical bonanza, handed down by a government keen to gain popularity by cutting surgical waiting times, has paid scant attention to the possibility that surgery for early cataract may carry unacceptable risks. Misleading of the public by trivialisation of cataract surgery has occurred, with its presentation in the media as a quick and easy operation with a high success rate, and patients with minor visual symptoms frequently seek surgery in the belief that it is (virtually) risk free. The evidence, however, indicates otherwise. Following cataract surgery, up to 8% of patients may be dissatisfied with the outcome of their operation,[5] with 7% reporting no change and 9% reporting increased difficulty at 6 months postoperatively in a sample of over 10 000 operations in the Swedish register.[4] These figures are at odds with the ''technical success'' rates frequently quoted, which typically note the posterior capsular and/or vitreous loss benchmark rate of $\leqslant 2\%$.[6] However perfect though, an operation on an eye that does not really need surgery is unlikely to provide much visual benefit and carries an unjustifiable risk.

Improvements in technology, higher expectations by the public, greater confidence of surgeons in their ability to deliver a quality outcome and politically driven initiatives to reduce waiting times have contributed to this phenomenon in the UK and elsewhere. In the National Health Service (NHS), thresholds for listing for surgery have become increasingly lenient in visual acuity terms; in 1990 under 9% of eyes for surgery had an acuity 6/12 or better,[7] by 1997 this had risen to 31%[8] and in 2003 had reached 45% in an 8-centre audit of over 16 000 cases.[9]

In this issue, Keenan *et al*[10] (***see p 901***) provide an impressive and detailed review of cataract surgical rates across England from the 1960s onwards. The exponential rise in surgery is catalogued separately from Hospital Episode Statistics (and its precursor, the Hospital Inpatient Enquiry) and the Oxford Record Linkage Study, the latter capable of separate identification of ''people'' as opposed to ''eyes'' undergoing surgery each year. Data are aggregated for three separate periods and further broken down by age and gender. Recent data are mapped and graphed to illustrate large geographical variations in surgical rates between local authorities, and these are correlated against the social deprivation score for that locality. Interestingly, higher levels of social deprivation are correlated with higher surgical rates, suggesting that access to care seems not to be significantly compromised in socially deprived local authorities, although, as the authors correctly comment, other socioeconomic forces may be influencing these observed gradients.

Few questions have been asked about the appropriateness of this exponential rise in surgical rates, which have generally been packaged and received as good news. Following on this tide of promotion and surgical confidence, a reality check may now be necessary to ensure that patients are protected from unnecessary harm when seeking assistance for minor visual symptoms from early cataract. Overprovision, should this now be occurring, is wasteful and potentially damaging. Patient-reported outcome and health-gain data are urgently needed to better our understanding of the risk-to-benefit balance of surgery for early cataract. This will serve to inform patients, surgeons and commissioners on how best to use an undoubtedly excellent surgical procedure. Healthcare providers are duty bound to ensure that cataract surgery is appropriately applied with optimisation of benefit and minimisation of harm.

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OCT for clinical detection and monitoring of glaucoma?

Optical coherence tomography for clinical detection and monitoring of glaucoma?

Christopher Bowd

OCT and all imaging technologies should be used in conjunction with careful clinical examination when making diagnostic and treatment decisions

Optical coherence tomography (OCT) has been used clinically for the detection of glaucoma for over a decade; however, its clinical usefulness has not been particularly well documented. Although many studies have shown that OCT measurements can discriminate between healthy and glaucomatous eyes, the great majority of studies demonstrating this have had limited clinical value. This is because most analyses were based on measurements of retinal nerve fibre layer (RNFL) thickness provided as continuous variables, and a great deal of overlap between measurements in healthy and glaucomatous eyes was observed. This made it difficult to determine what values should be used clinically as limits for classifying eyes as diseased, and in most published studies, no limits were recommended. Nonetheless, the performance of OCT for detecting RNFL thinning in glaucoma has been impressive given its limited number of data points (current maximum 512 A-scans) and relatively unsophisticated analyses (primarily measurements of global and local RNFL thickness).

Recently, a normative database has been added to the latest version of OCT (StratusOCT, Carl Zeiss Meditec, Dublin, California, USA), allowing comparisons of measurements of RNFL thickness with measurements from 328 healthy eyes, thus providing clinicians with potentially useful thresholds to aid in the determination of disease. Printouts from the StratusOCT display RNFL normative database information in the form of clinically helpful colour-coded graphs and charts. This is a significant improvement in the value of this technology because the clinician is now provided with additional information about measurements, including whether they are within normal limits, borderline or outside of normal limits relative to a healthy population.

A small number of studies have investigated the ability of StratusOCT normative data-based thresholds (ie, cut-offs) for classifying healthy and diseased eyes.[1–5] In this issue of, *British Journal of Opthalmology* Hood *et al*[6] (***see page 905***) describe the success of a variety of thresholds (and combinations thereof) for classifying eyes as healthy or glaucomatous. Their results indicate that the StratusOCT normative database is useful for detecting known glaucoma (defined as eyes with standard automated perimetry (SAP) and multifocal visual evoked potential defects), with sensitivities as high as 95% at a specificity of 98%. The most important outcome of their study is the identification of specific thresholds that are probably effective for detecting glaucoma. The study by Hood *et al* validates the use of OCT and the StratusOCT normative database for the detection of glaucoma, and provides the clinician with suggested thresholds by which to classify eyes, while providing researchers with suggested thresholds to investigate using independent subject populations.

It will be interesting to determine the usefulness of these suggested thresholds for detecting early or suspected glaucoma. We recently showed that OCT measurements are, predictably, less effective at classifying eyes with early disease than classifying those with advanced disease (with disease severity defined as degree of visual field defect).[7] For instance, the sensitivity (at fixed specificity = 85%) of OCT-measured average RNFL thickness for detecting glaucomatous eyes with average-sized discs decreased from 94% to 73% when the SAP Advanced Glaucoma Intervention Study score[8] decreased from 9 to 0. This finding suggests that the reported success of classification of glaucomatous eyes by OCT has probably been overestimated relative to the population in which it holds the most clinical utility, early or suspicious (ie, "pre-perimetric") glaucoma. Although it is important to demonstrate that a new imaging instrument can discriminate between healthy eyes and those with known glaucoma from a technology validation standpoint, in clinical practice one does not need an imaging test to differentiate a patient with repeatable glaucomatous visual field defects from an individual with no suspicion of disease. The more interesting (and important) question is, can the StratusOCT technology detect disease in patients suspected of having glaucoma, such as those who do not yet have repeatable visual field loss on SAP? Currently, some evidence suggests that this is the case.[2 9]

In general, it is accepted that OCT measurements can discriminate between healthy and glaucomatous eyes. For this task, the performance of StratusOCT compared with confocal laser ophthalmoscopy and scanning laser polarimetry has been impressive.[3 10] However, other aspects of OCT performance are yet to be investigated. Primarily, it is unclear whether the current version of OCT can effectively detect RNFL thinning over time in glaucomatous eyes. One reason this has not been well tested is because of a recent update in OCT technology that rendered measurements obtained with previous OCT versions incompatible with those from the current version.[11] Incompatible technology upgrades limit the available follow-up time for assessing