

NICE – impact on glaucoma case detection

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Abstract

Aim: To investigate the impact of publication of the National Institute of Clinical Excellence (NICE) guidelines ('Glaucoma: diagnosis and management of chronic open angle glaucoma and ocular hypertension') in April 2009, on the referrals for suspect glaucoma to Moorfields Community Eye Clinic (MCEC) at Ealing Hospital.

Methods: The clinical data from all optometrist initiated referrals for suspect glaucoma and ocular hypertension were scrutinised by a Consultant Ophthalmologist for a 2 month period, 6 months after the publication of the NICE guidance. Each was then categorised into the following groups: glaucoma positive; glaucoma suspect; glaucoma negative; ocular hypertension (OHT) requiring further follow up in clinic; ocular hypertension to be followed up by community optometrist; other. The positive predictive value (PPV) was then calculated and a historical comparison made with previous studies.

Results: A total of 110 new referrals were assessed during the collection period, which reflects a marked increase in numbers attending. However, there was no increase in absolute numbers of glaucoma and glaucoma suspects identified. The absolute numbers of ocular hypertensive patients rose. The PPV fell to 0.25, which is lower than found in previous studies.

Conclusions: The rising number of new referrals and the unchanged absolute numbers of glaucoma and glaucoma suspects identified following publication of the NICE guidance, in addition to a lower PPV, makes us question what advantage in improved case detection this represents. Furthermore, is this a cost effective strategy? We believe the next step is to introduce a repeat review, with carefully considered clinical governance of any new scheme.

Introduction

Glaucoma detection in the UK relies heavily upon the appropriate referral of patients from their community optometrist into the Hospital Eye Service.¹ At the Moorfields Community Eye Clinic (MCEC) at Ealing Hospital we have been studying these referrals over a period of more than 10 years.^{2,3} In common with other studies we found the positive predictive value of referrals for suspected glaucoma to be in the region of 40%. An intervention comprising further training in optic disc assessment, referral guidelines and ophthalmologist feedback resulted in a doubling of referrals with no change in positive predictive value.^{2,3} In April 2009, the NICE guidelines for “Glaucoma: diagnosis and management of chronic open angle glaucoma and ocular hypertension” were published⁴. Amongst other aspects, there was a requirement for all with repeatable intraocular pressures over 21mmHg by applanation tonometry to be assessed by a suitably trained healthcare professional with a specialist qualification and relevant experience⁴. In response to this, the Association of Optometrists, Association of British Dispensing Opticians and Federation of Ophthalmic and Dispensing Opticians jointly issued further recommendations that all with repeatable intraocular pressure over 21mmHg, regardless of the type of tonometer used for measurement, should be referred to an Ophthalmologist⁵. These changes have been widely debated and we undertook a repeat investigation to determine their impact on the referrals for suspected glaucoma into our department.

Methods

Data collection was not started until November 2010 to allow sufficient time for temporary changes in practice to filter through the system, and more nearly estimate current practice under the new guidelines. Clinical data was collected on all new patients referred from community optometrists for suspected glaucoma or ‘under NICE guidelines’ attending the MCEC during November and December 2009. All other referrals (initiated from general practitioners, other hospital departments or ophthalmic medical practitioners) were excluded.

All new patients had a clinical examination comprising of history taking, visual acuity, Goldmann applanation tonometry (GAT), pachymetry, gonioscopy, visual fields and anterior and posterior segment examination, included dilated stereoscopic disc assessment. The outcome of this examination was presented to a Consultant Ophthalmologist (with a specialist interest in glaucoma), to classify each patient as either glaucoma positive, glaucoma negative, glaucoma suspect or ocular hypertensive to be followed up by community optometrist or other. Glaucoma positive was defined as a confirmed diagnosis of open angle glaucoma, angle closure glaucoma or secondary glaucoma. Glaucoma negative was defined as no optic nerve head damage or visual field loss, an open angle on gonioscopy and an IOP of <22 mmHg. The term ‘glaucoma suspect’ was used when a patient did not clearly fall into any of the above categories, and further follow up appointments or repeat examinations were deemed necessary to reach a diagnosis. OHT was defined as no optic nerve head or visual field damage and an IOP of >21 mmHg. The final category, ‘other’, was used for patients who were not defined by any of the previous categories. This methodology is consistent with all previous studies and the category definitions have been reported elsewhere.⁶

Results

For historical comparison we report the most recent data together with data collected at intervals over the previous ten years.

Numbers of referrals

In the present study data was only collected during the months of November and December thus table 1 shows the numbers reviewed in the clinic for each of those months at different data collection time points where data is available. The increased numbers in 2000 and 2002 were reflected in other months as well and were considered to be related to the intervention mentioned above. In 2009 there was a marked increase in numbers attending and yet no increase in absolute numbers of glaucoma and glaucoma suspects identified. The absolute numbers of ocular hypertensive patients rose.

Data collection year	November			December		
	N	Gl.	OHT	N	Gl.	OHT
1999	22	11	1	18	8	3
2000	31	13	4	24	11	4
2002	37	17	5	32	12	4
2006	-	-	-	32	12	2
2009	68	16	9	42	11	8

N, total number of referrals: Gl. Glaucoma positive or suspect, OHT, ocular hypertensive

Table 1 Number of new referrals for suspected glaucoma to Ealing MCEC from optometrists by month and year with positive outcomes and ocular hypertension.

Positive predictive value and ocular hypertension

All data available was used for the positive predictive value and ocular hypertension proportion in order to provide best comparison estimates. Table 2 shows that the positive predictive value

Data collection period	N	Glaucoma/suspect (%)	OHT (%)	OHT (%) followed up in clinic
Aug.1999-March2000	399	196 (49%)	44 (11%)	35 (80%)
June2002-May2003	377	171 (45%)	54 (14%)	31 (57%)
Dec.2006-May2007	198	60 (30%)	16 (8%)	11 (69%)
Nov.2009-Dec.2009	110	27 (25%)	17 (15%)	14 (82%)

Table 2 Positive predictive value, proportions of glaucoma positive or suspect and ocular hypertensives by data collection period amongst optometric referrals for suspected glaucoma to MCEC in Ealing.

has decreased recently to almost half its original value from 45% to 49% down to 25%. The proportion with ocular hypertension does not seem to have changed hugely. Of the 14 that had a diagnosis of ocular hypertension following NICE guidelines, three received treatment.

Discussion

During the data-collection periods from 1999 to 2003 community optometrists who regularly referred to Ealing MCEC received ongoing training in optic nerve head evaluation, provision of referral guidelines and ophthalmologist feedback as part of an intervention study³. Since that time the feedback intervention has continued but the lecture frequency and feedback guidelines to new optometrists in the area has decreased and it may be as a result of this there was a decrease in positive predictive value in 2006/7. The numbers being referred in for glaucoma increased during the period of the intervention and remained at similar levels over the subsequent years until the introduction of the NICE guidelines. With these, the numbers being referred to the HES rose considerably and the positive predictive value fell. What is interesting is that the absolute numbers of glaucomas and glaucoma suspects detected did not change despite the greatly increased numbers referred into the clinic.

It is acknowledged that other factors, such as population size and the number of optometrists working in the area, may affect the number of new referrals to Ealing MCEC. However, this is unlikely to have any significant impact on the PPV, which is closely related to prevalence. The authors also recognise that this study compares only two months of data against a large amount of historical data. It is felt that sample bias is unlikely, however this limitation is acknowledged.

Amongst those referred during 2009, a common reason was the isolated finding of an intraocular pressure higher than 21mmHg (32/110 fell into this category). It is interesting that the proportion diagnosed with ocular hypertension did not change. This represents a large number of false positives. Equally because the numbers referred into the clinic almost doubled and because the NICE guidelines recommend 3-5 years follow-up of ocular hypertension in a clinical situation, the absolute numbers entering the clinic have increased. We believe important questions to address are what advantage in improved case detection does this represent and how cost effective is this strategy?

Out of all attending optometrists for assessment, the ideal is for every case of glaucoma to be identified and receive optimal clinical care. This is a challenge since resources are inevitably limited. Our historical comparison data has shown that the introduction of the NICE guidelines does not seem to have resulted in any additional cases of glaucoma being diagnosed, the numbers coming through the hospital eye services have however, considerably increased. Numbers reviewed in our hospital eye services similarly increased with the introduction of an intervention comprising further training in optic disc assessment, referral guidelines and ophthalmologist feedback. In that instance however, the positive predictive value of referrals for suspected glaucoma did not change, meaning there was an increase in the number of glaucoma cases being detected.

Eye units throughout the country are urgently addressing the issue of how to cope with the increased numbers of referrals into the hospital eye system. In December 2009 the College of Optometry issued guidelines on the referral of Glaucoma suspects by community optometrists.⁶ The impact of these has not been assessed. In addressing the problem the first and most logical step is to introduce a repeat review. In Scotland repeat checks are funded centrally. In England a variety of schemes are either in place⁷ or being rapidly introduced. The clinical governance of such systems has to be carefully considered for it is not the success stories that get publicity but rather false negative stories. These can cause untold damage to service credibility and jeopardise future case detection.

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