ORIGINAL ARTICLES

Patients' attitudes towards mydriasis for diabetic eye disease screening.

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ABSTRACT

Aims
The purpose of the questionnaire was to explore attitudes of patients towards mydriasis for diabetic retinopathy screening.

Methods
Two groups of patients were invited to take part: group 1 comprised patients attending the diabetic clinic and had previous experience of mydriasis, group 2 patients attending the mobile screening unit for non-mydriatic digital retinal photograph and who were not previously used to receiving mydriatic eye drops. Basic demographic data was recorded and the volunteers invited to complete a questionnaire.

Results
292 patients were recruited into group 1 (median age 63 years range 20-94) and 103 into group 2 (median age 68 years range 29-96). 42% of patients in group 2 indicated that they were unhappy with the use of dilating eye drops and 26% of this group reported that they may be discouraged from attending screening for diabetic retinopathy if drops were introduced. These figures were statistically lower in group 1 at 8% and 1-8% respectively ($p<0.001$). Blurring of vision was identified as the most troublesome feature of the use of mydriasis for patients. A large proportion of patients drove themselves to their last screening appointment; 58% in group 2 and 39% in group 1. A third of all patients (33%) indicated that they worked outside the home.

Conclusions
Many patients attending diabetic eye screening return to driving and work immediately after the appointment. Introduction of the use of routine drops may discourage attendance. Education and experience may have an important role in improving acceptability of mydriatic eye drops. Retinal screeners need to have clear guidelines with which to advise patients.

Introduction

The role of diabetic retinopathy screening is well established but the necessity for routine mydriasis is controversial. While the National Screening Committee (England and Wales)[1] has advocated the use of routine mydriasis for digital photography, the Health Technology Board (Scotland)[2] has suggested a staged approach, with mydriasis only in those patients in whom an unsatisfactory non mydriatic photograph is obtained. Mydriasis has been shown to decrease the technical failure rate of photographs,[3,4] however the introduction of mydriasis has implications for both the organisation of the service and inconvenience to the patient. Pupillary dilation can interfere with patients' lifestyle by reducing visual acuity, restricting driving and delaying return to employment[5-7]. The aim of the questionnaire was to assess patients' attitudes to pupillary dilation.

Patients and Methods

Two groups of patients with diabetes were recruited to explore their perceptions towards mydriasis. Group 1 comprised 292 patients attending the diabetic clinic and had previous experience of mydriasis (median age 63 years range 20-94). Group 2 comprised 103 patients attending the mobile screening unit for non-mydriatic digital retinal photograph and who were not used to receiving mydriatic eye drops (median age 68 years range 29-96). Local Ethics Committee permission was received for the distribution of the questionnaire.

Results

Table 1 presents the results from the questionnaire. Patients commonly drive themselves to the screening episode (39% in group 1 and 58% in group 2). Patients travel up to 28 miles to attend the screening appointment (median distance 2 miles and 3 miles for group 1 and 2 respectively). The majority of patients would find the use of eye drops acceptable, but there was a minority who would be unhappy with this intervention (up to 42%). Patients were more likely to find this unacceptable if they had previously used the screening procedure in which eye drops were not used. The commonest reason for disliking eye drops was the blurring of vision, which could affect their functional capacity afterwards. For patients used to screening without eye drops, up to 26% may be discouraged from future attendance if they were introduced, while the figure was only 1% (up to 8%, $p<0.01$) for patients used to receiving drops. For both groups, one third of patients worked at a site away from their home.

Table I Group (1): patients attending Diabetic Eye clinic having routine annual dilated direct fundoscopy. Group (2): patients attending mobile diabetic screening unit for annual non-mydriatic digital photography.

Distance travelled to mobile screening unit

	Median distance miles	Range miles
Group (1) N=292	2.00	0.2-20.0
Group (2) N=103	3.00	0.2-28.0

Mode of transport to mobile unit

	Drove myself	Driven by other	Walked	Public transport
Group (1) N=292	39% (113)	20% (57)	24% (70)	18% (52)
Group (2) N=96	58% (56)	18% (17)	16% (15)	8% (8)

If eye drops improved the quality of the photographs how would you feel about their use?

	No response	Unhappy	Acceptable	Don't know
Group (1) N=292	3% (9)	8% (22)	85% (247)	4% (14)
Group (2) N=103	0	42% (43)	56% (58)	2% (2)

What is the worst aspect of the eye drops?

	No response	Waiting for drops to work	Blurring of vision	Discomfort on instillation
Group (1) N=292	16% (48)	26% (76)	41% (120)	16% (48)
Group (2) N=103	5% (5)	4% (4)	63% (65)	28% (29)

Would the use of eye drops discourage your attendance at the mobile screening unit?

	No response	Yes	No	Don't know
Group (1) N=292	6% (18)	1% (3)	92% (269)	<1% (1)
Group (2) N=103	0	26% (27)	74% (76)	0

Do you work outside the home?

	No response	Yes	No
Group (1) N=292	6% (18)	33% (96)	61% (178)
Group (2) N=103	24% (25)	33% (34)	43% (44)

Discussion

Patients previously used to mydriasis were less likely to be discouraged from future attendance at diabetic eye screening if routine eye drops were introduced compared to patients not used to routine mydriasis (1-8% vs 26%). This suggests that education and familiarity may be effective in improving attitudes to eye drops. Patients' perceptions of screening for diabetic eye disease and enhancing the patients' feeling of control over their disease can be improved with education.[8] Routine mydriasis is easier to organise, whilst targeted use may be more patient friendly.

Our study area covers an area of 7770km^2 with a large rural population. The mobile screening unit allows the screening episode to be brought closer to the patient but still requires significant travelling. Many patients needed to be able to drive to the screening episode and/or to work. Blurring of vision was the most troublesome feature of the eye drops, which may impair driving and the ability to return to work. In a recent study of 28 patients, all of whom had fulfilled the DVLA visual requirements prior to dilating drops, 22% failed to read a standard number plate at 20metres indoors post dilation and 14% of patients felt unsafe to drive.[6] The dependence on driving to access the screening episode means that restriction on driving may present as a significant obstacle to patients attending a screening appointment.

The effect of mydriasis on visual acuity is poorly defined. Factors such as the undilated visual acuity, refractive error, presence of cataract and the ambient lighting conditions influence the post dilation visual acuity.[5,6,7] At present it is difficult to predict which patients would fail the visual acuity standard for driving post dilation. The level of predicted visual acuity may allow appropriate advice to be given to patients, but further research is required in this area. Recent work suggests an inconsistent approach of advice given by health workers on driving following mydriasis for diabetic eye screening.[9] Furthermore, a case report described a patient involved in a road traffic accident following mydriasis for diabetic screening. The patients' insurance company declined to cover the costs and the police prosecuted for driving without adequate insurance.[9] The patient information leaflet produced on the National Screening Committee web site advises that blurring of vision may be problem for up to 4 hours and advises against driving to a diabetic retinopathy screening episode.[10]

To reduce the impact of mydriasis, an age related strategy could be utilised. In a screening population, dilating those aged over 60 years would increase gradable photographs from 74% to 90%, while 43% of patients avoided the need of mydriasis.[4] Younger patients were less likely to require mydriasis and were more likely to be driving or working after the screening episode. Another alternative is to use 'staged mydriasis' where drops are given when there is an inadequate digital image without the use of drops.[2]

To encourage the maximum attendance at screening it is vital that the process is acceptable to the target population. The provision of a screening service must strive to be as acceptable and accessible as possible whilst not compromising the sensitivity and specificity of the investigation. The use of mydriasis in a screening programme must accommodate the patients' requirements as much as possible.

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