

Training GPs to screen for diabetic retinopathy

The impact of short term intensive education

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OBJECTIVE To improve general practitioners' knowledge and skills about diabetic retinopathy.

SETTING An upskilling program of 11 Sydney (New South Wales) GPs.

MAIN OUTCOME MEASURES Level of competency determined by an educational assessment before and six weeks after the program.

RESULTS Mean scores for multichoice questions increased from 53% before the education to 84% after ($p<0.001$); for a photographic examination from 44 to 53% ($p=0.08$); and for clinical examination from 41 to 69% ($p<0.001$). The screening specificity increased from 47 to 73%.

CONCLUSION General practitioners' knowledge and skills about diabetic retinopathy improved at least short term following an intensive educational program.

Diabetic retinopathy is the leading cause of blindness among working age people in developed countries,¹ accounting for 10% of all blindness in Australia, almost all of which is preventable.² Eighty percent of Australian patients with insulin dependent diabetes mellitus are affected after 10 years, almost all by 15 years, and 30% with proliferative diabetic retinopathy by 20 years.^{3,4} For noninsulin dependent diabetes mellitus, the equivalent prevalence figures are 15% at the time of diagnosis, 70% after 15 years, and 15% with the proliferative form at 20 years.^{3,4}

Early detection and treatment may reduce visual loss, using laser therapy.^{5,6} Yet many people with diabetes fail to be

screened.⁸ Skilling general practitioners to do so should increase the number screened.⁷ This may also strengthen the perception by both doctor and patient of the strong link between retinopathy and glycaemic control.²

Effective screening for retinopathy requires achieving a sensitivity rate of 60%.⁹ If no retinopathy is found, non-specialists should screen every two years. If detected, diabetic patients should be referred to an ophthalmologist. A review of studies assessing GPs' ability to detect diabetic retinopathy found the sensitivity to vary between 52–65%.¹⁰ This can be improved following a brief skills workshop.⁶ We aimed to confirm the effectiveness of a brief education to improve

GPs' ability to undertake this screening.

Methods

We recruited 15 GP volunteers from two Sydney (New South Wales) divisions of general practice. They undertook a written and practical assessment of their eye skills and knowledge (10 multiple choice questions [MCQs]), 10 fundus photographs, and seven clinical examinations of patients with dilated pupils using direct ophthalmoscopy, of whom three had diabetic retinopathy and four did not, and for which a correct diagnosis required identifying specific retinopathy signs such as hard exudates. They then attended a workshop, comprising an overview of diabetic retinopathy, a practical demonstration of the direct oph-

Table 1. The mean assessment scores (95% CI) before and after the program

Test	% mean score (95% CI)		
	Before	After	p-value
MCQs	53 (51–54)	84 (93–86)	<0.001
Examination of photography	44 (36–52)	53 (49–58)	>0.05
Patient clinical examination (ophthalmoscopy)	41 (37–45)	69 (65–73)	<0.001

Table 2. Number (%) of GPs reaching the NHMRC minimum level of 60% for sensitivity and specificity before and after the program

Measure	Number (%) of GPs reaching 60%	
	Before the workshop	Six weeks after the workshop
Sensitivity	10 (93)	10 (91)
Specificity	5 (47)	8 (73)

thalmoscope and fundoscopy practice, provided by two ophthalmologists. They were then encouraged to practise these skills in their practice.

After six weeks we repeated the previous assessment, using the same MCQs and fundus photographs as before. Ethics committee approval was granted by the University of New South Wales.

Analysis

Mean scores were calculated for the group for each of the three components of the 11 GPs. The mean total scores for each component were approximately normally distributed, enabling us to use a t-test.

The sensitivity of detecting the presence of diabetic retinopathy in the clinical examination was calculated as the ratio of patients correctly diagnosed to the total number of diabetic retinopathy positive cases (three patients for both before and

after the workshop), if not the precise diagnosis (being the practical requirement for any doctor screening for retinopathy) which would lead to referral. Similarly, specificity was the ratio of the number of normal cases correctly identified to the number of normal patients (four patients).

Results

Only 11 GPs returned for the posteducation assessment. The improvements in scores between before and after the workshop were significant for the MCQs and the clinical examination components, but not the fundus photographic component (Table 1).

The percentage of GPs reaching 60% specificity of a correct diagnosis of diabetic retinopathy assessments increased. This should enable a reduction of unnecessary referrals. General practitioners' ability to detect diabetic retinopathy was very good before the workshop and there was no improvement (Table 2).

Discussion

The limitations of this study are the very small number of GPs involved and the small sample of patients examined (the most face-valid component of the assessment). Moreover, the GPs were volunteers. The follow up assessment was at only six weeks. This means that generalising these results to the wider population can be undertaken only with caution.

The GPs were good at identifying dia-

betic retinopathy even before the workshop. Their false-positive rate fell to acceptable rates after our workshop. Nevertheless, we think this is further modest support for GPs undertaking their own screening for retinopathy among their patients with diabetes.

Acknowledgment/conflict of interest

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Implications of this study for general practice

What is already known:

- Dilating the pupil is a safe procedure for general practice screening.
- GP screening for retinopathy should reduce the number of diabetic patients who fail to be screened.

What this study has shown:

- GPs will attend regular workshops to maintain or to improve their eye examination skills.
- They quickly learn the skills of dilated fundoscopy for screening for diabetic retinopathy.

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