Testing acuity of vision in general practice: reaching recommended standard

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Measurements of acuity of vision are highly reliable—with a reliability in excess of 98% according to one important study¹—because a standard protocol exists. The British Standards Institution specifies the minimum illumination for externally illuminated charts and the distance that patients should be from the chart.² Compliance with this standard helps to ensure comparable results in the measurement of acuity of vision. Patients' acuity of vision measured in the eye department at this hospital, however, sometimes differs from the measurement given in their referral letter. I examined whether general practice surgeries complied with standards on illumination and distances.

Methods and results

I randomly selected 24 of the 48 main general practices that fell within the boundaries of the former Torbay District Health Authority. Branch surgeries were excluded from the survey. In September 1993 I visited 22 of the 24 surgeries and measured the distance between the patient and the test chart with a 7 m metal tape measure to the nearest centimetre and the illumination falling on each chart with a luxmeter to the nearest 10 lx.

The 22 surgeries had 67 rooms with a fixed Snellen chart (the most commonly used chart for testing acuity of vision). All the surgeries had at least one chart, either a chart designed to be read at 3 m (54 rooms) or one to be read at 6 m (13). Two of the 6 m charts were of the reversed type—that is, the chart is behind the patient, who reads it in a mirror directly opposite.

The distance the patient had to stand from the chart was shown in only one of the examination rooms (which had a 6 m chart). None of the general practitioners or practice nurses was aware of the minimum lighting requirement of 480 lx.

The distance that the patient had to stand from a chart ranged from 206 cm to 480 cm (mean 305) for the rooms with 3 m charts and from 310 cm to 600 cm (512) for those with 6 m charts. External illumination ranged from 60 lx to 1600 lx (447) for the rooms with 3 m charts and from 100 lx to 725 lx (325) for those with the 6 m charts.

Comment

Few tests can quantify loss of any sensory function as easily as the test of acuity of vision. Loss of acuity may be the only indicator of the onset of serious eye disease. Testing acuity of vision is particularly important, for example, during the screening of diabetic patients for retinopathy including macular oedema. Even a one line change in acuity may be of importance and should arouse suspicion.

Driving is a key activity for people in isolated rural areas, both for employment and for daily living. The standards of vision for driving are strict; if testing of vision is inadequate public safety may be at risk or people may lose their livelihood unnecessarily.³

Recommendations

Distance

Snellen charts for testing acuity of vision should be the recommended distance from the patient for the size of chart used—that is, 300 cm for 3 m charts and 600 cm for 6 m charts. The distance should be marked so that it cannot be erased, and the patient should stand behind this mark.

Lighting

The minimum illumination for externally illuminated charts is 480 lx. This can easily be achieved by directing a spotlight at the chart.

This study shows that most general practitioners estimate rather than measure the distance between their patients and the vision test chart, and none of the doctors was aware of the minimum standards on illumination (see box for recommendations). Although I did not study the effect of the variation in distances and illumination on patients' recorded acuity of vision, it would be fair to assume that the reliability and reproducibility of measurements of acuity of vision made in general practice may be in doubt.

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1 Blackhurst DW, Maguire MG. Reproducibility of refraction and visual acuity measurement under a standard protocol. *Retina* 1989;9:163-9.

2 BS 4274:1968. *Specification for test charts for determining distance visual acuity*. London: British Standards Institution, 1968.

3 Raffle A. *Medical aspects of fitness to drive—a guide for medical practitioners*. 4th ed. London: The Medical Commission on Accident Prevention, 1985.

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Management of ventricular fibrillation by doctors in cardiac arrest teams

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Successful management of a cardiac arrest in accident and emergency departments or other specialised hospital units can be expected to result in a survival rate of around 50% initially and around 20% after one year.¹ The protocol for managing ventricular fibrillation and the importance of rapid defibrillation were emphasised in the European Resuscitation Council guidelines 1992 on advanced life support.^{2,3} We investi-

gated knowledge of these guidelines among doctors in cardiac arrest teams with respect to the management of ventricular fibrillation.

Methods and results

In December 1993 and January 1994 we conducted a telephone survey of 113 doctors in the cardiac arrest teams from 62 teaching and district hospitals in England and Wales. These hospitals were randomly selected from the 1993 directory of the British Association for Accident and Emergency Medicine. The doctors carrying cardiac arrest pagers were contacted consecutively on the same day through their hospital operators to prevent discussion between them. They were asked about management of a witnessed cardiac arrest due to ventricular fibrillation, practical training for cardiopulmonary resuscitation within the previous year, knowledge of the European Resuscitation Council