Clinical Topics

Visual screening of pre-school children

J H CAMERON, M CAMERON

British Medical Journal, 1978, **2**, 1693-1694

Summary and conclusions

In an attempt to reduce the incidence of persistent amblyopia and related disorders, routine screening of the visual function of pre-school children has been introduced in Ayrshire, the tests being carried out by orthoptists. A pilot study confirmed the feasibility of the screening. Under the definitive scheme, whose first three months' results are presented, the children are examined as near as possible to their homes and the average attendance rate has been 86%. Thirty-seven of 442 children were referred to an ophthalmic clinic with suspected abnormalities (only one of which was not confirmed) that had not been picked up by the GP or welfare clinic.

It is concluded that visual screening of pre-school children is administratively feasible and welcomed by parents, and that it can detect abnormalities missed by traditional procedures—which according to these results may be more than half of the total.

Introduction

By the time a child has passed the age of 5 disorders of binocular function may be too deep-rooted for satisfactory treatment. Thus we should be detecting and treating amblyopia and related disturbances while the child is still very young. For this reason we have introduced a routine procedure for screening the visual function of small children in Ayrshire, and we describe here the nature of the examination, how the screening is organised, and the results of the first three months.

Methods

Primary visual screening consists of certain tests of visual function carried out routinely on children in a selected age group by workers who are skilled in the techniques and in interpreting the results. It should include taking a history that covers any ocular or visual problem reported by the parents or other observer and any such problems in the child's immediate family. Our screening test includes recording the visual acuity in both eyes by a method appropriate for those who cannot read (Sheridan-Gardiner); examination of ocular movements, a cover test, and a prism reflex test to explore the state of muscle balance; and checking stereopsis by the "Frisby" stereotest or "TNO"

Ophthalmic Unit, Heathfield Hospital, Heathfield Road, Ayr
J H CAMERON, MB, DO, ophthalmologist
M CAMERON, DBO, orthoptist

We arranged that orthoptists should carry out the screening. Having found a 23% incidence of "false-positives" in the school eye test in this area, we did not wish to have the primary visual screening done by doctors from the school medical service whose normal work was of a general nature, or by health visitors. On the other hand, ophthalmologists would not be available to do it. But, in Scotland at least, there are enough orthoptists not already fully employed to do the work[1]: and they are highly skilled in examining small children.

The choice of the age of 3½ years was a compromise. We wanted the children young enough to have a reasonable prospect of benefiting from treatment, and yet old enough for the examination to give accurate results.

FEASIBILITY STUDIES

We first decided to carry out a pilot study to find out how many orthoptists would be needed to provide such a screening procedure for the community, what the administrative problems would be, and how the parents would react. So an orthoptist was employed part time to screen 416 children of the appropriate age living in three different but representative communities within the area. Lists of names were provided by the department of community health and child care, which also notified the parents and explained the purpose of the tests. The number of untraceable children, however, fell from 39% to an insignificant level only after we had enlisted the help of the health visitors.

Our orthoptist was able to examine up to 12 children in a three-and-a-half-hour session while maintaining satisfactory records. The attendance varied from district to district and from day to day, the average being 69%. We concluded that a definitive scheme for primary visual screening was within the clinical and administrative resources of the area.

THE DEFINITIVE SCHEME

Having convinced the Ayrshire and Arran Area Health Board that primary visual screening was clinically desirable and that our scheme would be viable on a long-term basis, we had no difficulty in persuading it to appoint another orthoptist, this one being full time. The definitive scheme began in south Ayrshire in January 1978, the intention being to extend it to the entire area with the minimum delay.

There had been some evidence that if children were examined as near home as possible we could achieve a much higher attendance rate. We therefore arranged for them to be examined in any convenient building near where they lived—if a village could produce 10 or more children of the appropriate age it seemed worth travelling there to examine them. Thus we have used hospital clinics, health clinics, schools, and in one case the surgery of a country doctor. The lists of children are given to the health visitors, who confirm the addresses and visit all the households to persuade the mothers to keep the appointments.

To launch the scheme we had the area health board press officer organising publicity. He performed his task with unanticipated enthusiasm, obtaining not only coverage in the local press but also four minutes on BBC Television in *Reporting Scotland* and an interview on Radio Scotland. Perhaps this explains the enthusiastic response that the public has so far made to the scheme.

Results

In the first three months of the definitive screening scheme 442 children have been examined—86% of the children sent for, the rate varying from 59% to 100%. The tests have taken 37 orthoptic sessions.

Thirty-seven of the 442 children have been referred to a hospital ophthalmic clinic with a suspected abnormality, and in only one case was the abnormality not confirmed (table I). Thirty-two other children had abnormalities, which had been picked up by their family doctor or child welfare clinic. This means that the traditional procedures had picked up less than half of the abnormalities in this group of children. As a result of our screening 10 children had spectacles prescribed for defective visual acuity, nine for latent squint, and one for manifest squint (table II).

TABLE I—*Incidence of defects in children having primary visual screening*

	No (%) of children
Total examined	442
Referred to hospital clinic	37 (8)
Defect not confirmed	1
Defect already diagnosed	32 (7)
Total defects	68 (15)

TABLE II—*Nature of defects found in primary visual screening*

	No of children with:		
	Manifest squint	Latent squint	Defective visual acuity
Glasses ordered	1	9	10
Glasses not necessary	4	4	
Glasses not yet advised	1	3	4
Total	6	16	14

Comment

The orthoptists are happy with the work load, which is shared among all the members of their department; and the administration is working smoothly. There is a most encouraging response from the parents, who, though they are mostly unaware of the problems of visual function in children, are invariably glad that their children's vision is being examined at such an early age. In two years these children will have their routine school eye test, and we shall be interested to discover whether the primary visual screening has reduced the incidence of persistent amblyopia and related abnormalities.

We wish to thank Mrs Barbara Roy for her help with the feasibility studies.

Reference

[1] Roy, B, *et al*, *British Orthoptic Journal*, 1977, **34**, 23.

How to do it

Take an examination viva

N K SHINTON

British Medical Journal, 1978, **2**, 1694-1695

The relative importance of the viva voce section of an examination varies from one examination to another. It may be the final assessment of the candidates and therefore only important to those with borderline results, or it may carry a proportion of marks. In some examinations it may be the method of deciding on distinction or honours. These are matters of immediate concern more to the examiner than to yourself and you should approach all viva voce examinations with the intention of conveying to the examiner the fullest possible extent of your understanding of the subject to be discussed. The candidate's approach may be vital for success. Candidates' personalities vary from the overconfident aggressive ones to the shy timid people who find this part of the examination the greatest ordeal. Personality differences cannot be completely overcome and it is better for you to behave normally and not attempt to act out a part which, to your embarrassment, will probably be detected. A determined effort to be composed is always worth while but, in furtherance of this aim, I wouldn't recommend tranquillisers, and hypnotics the night before can leave you overcome by sleep at a critical moment.

The moment of face-to-face contact between the examiner and yourself is important as first impressions can make a difference. For this reason, if you are neatly dressed you have an advantage over someone who is slovenly or flamboyant. Likewise, your entrance into the room and the way you take the proffered chair may convey an impression of alertness or sloth.

The initial question is usually a general one to give you time to settle down and to allow a rapport to develop. At this stage it is most important for you not to repeat the question while you think out the answer—this is a most irritating habit, and remember that the examiner will be listening to numerous candidates. It is better for you to start talking about the subject and if possible go on until the examiner either indicates that he is satisfied or moves on to another question. In the unfortunate event that you do not understand the question, ask for it to be repeated, or say that you don't understand. If you really don't know anything about the subject then say so, because this fact will eventually be deduced and valuable time will have been lost. You should appreciate that in the time allotted you must get across the maximum extent of your knowledge. Many candidates know the subject but are unable to communicate their knowledge to others.

Testing your ability to communicate is the whole purpose of a viva voce examination. Always avoid vagueness or using words

Coventry and Warwickshire Hospital, Coventry CV1 4FH
N K SHINTON, FRCP, FRCPATH, consultant haematologist