Clinical implications

- Migraine is the most common cause of severe recurrent headache in children, affecting one child in nine between the ages of 5 and 15
- Migraine is an important cause of school absence
- Tension headache is an unusual cause of headache severe enough to interfere with normal activities

are available, comparison with other studies suggests that the prevalence of migraine in children may have risen over the past 30 years.

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Serum screening for Down's syndrome: experiences of obstetricians in England and Wales

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See article on p 776
and editorial by Eyas

Abstract

Objectives—To assess the experiences of obstetricians in England and Wales of serum screening for Down's syndrome.

Design—Postal questionnaire survey.

Subjects—Questionnaires were sent to all practising obstetricians in England and Wales with non-academic appointments who had not participated in an earlier (randomly sampled) survey of obstetricians' attitudes (n=555). Responses were received from 393 (71%), of which 351 were analysed. The data represent about one third of obstetric consultants in England and Wales.

Main outcome measures—The extent of use of serum screening for Down's syndrome, and the problems encountered.

Results—Serum screening for Down's syndrome was being offered on some basis by virtually all obstetricians in the survey. Nearly half the sample said that they did not have adequate resources for counselling all the women to whom screening was offered. Many problems were reported, which in all cases were more common than equivalent problems encountered with serum screening for neural tube defects. Over 80% (289) said that women not understanding the test was a problem.

Conclusions—There is considerable confusion associated with serum screening for Down's syndrome. The precedent of serum screening for neural tube defects does not seem to have lessened the problems experienced, rather the contrary. Many obstetricians report inadequate resources for counselling, which is consistent with the high prevalence of problems associated with women not

understanding the test. There is an urgent need to consider what counselling should consist of and who should undertake it and to ensure that necessary resources are available.

Introduction

Screening for fetal abnormality has become a major part of antenatal care, and there has been much discussion of the pros and cons of various tests—notably, serum screening for Down's syndrome. A survey in 1991 found that the use of such screening in the United Kingdom was expanding rapidly but in a piecemeal and sometimes inappropriate fashion.¹ This survey was based on returns from directors of public health and asked about provision in 1991 and expected provision in 1992. Debates in the medical press suggest that many of those at the front of service provision are unhappy about the test, but there is no systematic information about the attitudes and experiences of obstetricians on this subject.

I carried out a survey of the attitudes of consultant obstetricians towards prenatal screening and diagnosis and towards termination of pregnancy. I report here on the questions relating to serum screening for Down's syndrome. Other aspects of the survey have been reported elsewhere² and are being prepared for publication.

Subjects and methods

Names and addresses of members and fellows in England and Wales were obtained from the Royal College of Obstetricians and Gynaecologists. Subjects

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were excluded from the survey if they were known to have retired; work in a specialty other than obstetrics (for example, genitourinary medicine); have an academic appointment (which excluded about 10%); or have taken part in another recent survey of obstetricians' attitudes. Questionnaires were sent to the remaining 555 obstetricians in May 1993 (appendix). Reminders were sent at the beginning of June and again at the beginning of July. Overall, 393 responded (71%). Five indicated that they did not want to take part and 27 that they were not practising obstetricians. Four questionnaires arrived too late for inclusion. Analysis is therefore based on 357 (64%) questionnaires, although inevitably some questions were omitted by some respondents. This number represents about a third of consultant obstetricians in England and Wales.

Results

TESTS OFFERED

Most (335; 94%) of the consultants offered some form of serum screening for Down's syndrome to at least a specified subgroup of their patients. Over half (184) were offering it to all women in their care (table).

Numbers (percentages) of respondents (n=357) routinely offering specified tests to all, some, or no women in their care

Test	All	Some	None
Ultrasonography: anomaly scanning	302 (85)	51 (14)	4 (1)
Ultrasonography: dating scan	292 (83)	57 (16)	5 (1)
Serum screening for Down's syndrome	184 (52*)	143 (40)	22 (6)
Serum screening for neural tube defects	252 (71)	53 (15)	50 (14)
Serum screening for toxoplasmosis	6 (2)	167 (47)	183 (51)

*Plus 2% who only offer the test privately.

Of these, 176 were also using serum to screen for neural tube defects. Those offering serum screening for Down's syndrome to only some of the women in their care, however, were less likely to use it in this way: 34 out of 143 (24%) of them said that no woman in their care was offered serum testing for neural tube defects. Only 14 respondents who were offering serum screening for neural tube defects were not offering serum screening for Down's syndrome to any women in their care, and only eight respondents offered no form of serum screening to any of their patients. Of those offering serum screening for Down's syndrome to all women, 156 (85%) said that all women received a dating scan, although when the scan was offered is unknown.

OUTSIDE PRESSURES

One hundred and twenty three respondents (35%) indicated that they were carrying out certain procedures because of outside pressures rather than because they consider them clinically valuable. Serum screening for Down's syndrome was the most commonly specified (67 (19% of the sample, 54% of those answering yes)). Seven of those giving this response were not currently offering the test but were presumably indicating that they felt under pressure to do so. Of those offering serum screening for Down's syndrome to some women, 33 out of 138 (24%) gave this response, as did 24 of the 179 (13%) who offered it to all women.

A similar number of respondents (119; 33%) indicated that outside pressures prevented them from implementing certain procedures that they considered to be beneficial. Again, serum screening for Down's syndrome was the most commonly specified (67 (19% of the total sample; 56% of those answering yes)). Eight of the 22 (36%) obstetricians who did not perform serum screening for Down's syndrome would like to be doing so. Of the 184 already offering Down's serum screening to all women in their care, 10 (5%) also

gave this answer, indicating that they wanted to be providing a better test—for example, triple test instead of test for α fetoprotein alone or first trimester scan.

COUNSELLING

Of the 315 offering some serum screening, 146 (46%) said that they did not have sufficient resources to provide adequate counselling, and this was clearly a source of concern to many. "If you can't provide adequate counselling, you shouldn't be doing the test! It's all part of one process." When asked the same question with regard to counselling for amniocentesis and chorionic villus sampling only 107 (30%) said that their resources were inadequate.

PROBLEMS ENCOUNTERED

For every one of a list of potential problems associated with serum screening (see appendix), screening for Down's serum was reported to be more of a problem than serum screening for neural tube defects (sign test, $P < 0.01$ or less in all cases).

The most frequently encountered problem for both conditions was anxiety caused by false positive results (266/302 (88%) for Down's, 238/309 (77%) for neural tube defects). This observation is also supported by some studies that have measured anxiety in women undergoing these tests.³ One hundred and ninety nine out of 296 (67%) thought that the offer of the test created anxiety for at least some women (129/309 (42%) for neural tube defects). Women's understanding of the test was seen as a problem in Down's screening by 245 out of 301 (81%) respondents and midwives' understanding by 151 out of 300 (50%). Clearly these are likely to be related problems. One respondent also added doctors not understanding the test as an additional problem.

Discussion

Serum screening for Down's syndrome is being offered on some basis by virtually all obstetricians in England and Wales, with about one half offering the test routinely to all women in their care. My questionnaire did not ask which biochemical test was being used or the basis for defining a subgroup to whom to offer the test. Comments suggest problems in both of these areas. Wald *et al* found that several districts were offering serum screening only to older women as an alternative to amniocentesis,¹ and this was also evident in my survey. For some obstetricians this was a non-clinical decision: "The triple test is offered to women of 35 and over, but this is because of other factors within the administration." For others it was reasoned policy: "We have taken a policy decision as a unit not to offer a screening service for Down's to the whole population, only to those who request and those aged 35-37 who prefer not to opt directly for amnio. This is because of the 60% detect rate < 37 years and 80% > 37 years which we feel misses too many cases."

There were also difficulties integrating serum screening for Down's syndrome with scanning: "False positive Down's anxiety would be less if we could take on first trimester scans." Another respondent said: "Scan restrictions (financial constraint) mean routine dating and anomaly scan are combined at 18 weeks, so serum screening is not undertaken until after this."

Other comments highlighted the complexities associated with the decision to offer screening; some obstetricians thought that they had a negligible input to the decision, others felt overwhelmed by the choices about which markers to measure and to which women to offer the test. A number commented on the need for a national policy.

Serum screening for Down's syndrome was seen as consistently more problematic than serum screening

Practice implications

- Serum screening for Down's syndrome is now widely used in England and Wales
- More problems are being reported than was the case with serum screening for neural tube defects
- Obstetricians do not think that they have the resources to provide adequate counselling; 81% cited "women not understanding the test" as a problem
- There is an urgent need to consider what counselling should consist of and who should undertake it and to ensure that necessary resources are available

for neural tube defects. Why should this be? Firstly, the test is replacing two existing tests: serum screening for neural tube defects and age as a screening test for Down's syndrome. The test procedure is the same as for neural tube defects so women may mistakenly think that they understand.⁴ The relation between age and Down's syndrome has been accepted by women and midwives but is not recognised as screening, and thus most older women (those whose babies do not have Down's syndrome) were not being seen as "false positives," just as the young women who gave birth to Down's babies were not seen as "false negatives." The introduction of a new screening method has challenged old ideas by drawing attention to the fact that any pregnant woman could be carrying a fetus with Down's syndrome.

Difficulties in understanding the test arise partly because details (what is measured and what cut off points are used) vary from place to place. A more fundamental difficulty, however, is a failure to distinguish between screening and diagnosis. The test is seen as poor because it has false positive and false negative results; one obstetrician commented that if the pick up rate was only going to be 57% rather than 66% "why not toss a coin?" In fact the triple test performs relatively well on these criteria, with a positive predictive value of 1 in 68, which is about twice that of maternal age.

Nearly half of those offering serum screening said that they did not have adequate facilities to counsel the women to whom the test is offered. This is an issue raised by the recent report from the Nuffield Council on Bioethics *Genetic Screening: Ethical Issues*.⁵ There are clearly questions about who should counsel, where and when, and what counselling actually means. Should information about the test be given by the hospital or the primary care team? This is an issue in need of resolution given the current trend towards returning antenatal care to the community. Women may turn to their general practitioners and community midwives for information and support but find that knowledge is lacking.⁴

There are different requirements for counselling before and after tests. Pretest counselling should give women the information on which to decide whether or not to be screened.⁶ This may include consideration about how they might react to certain scenarios—for example, a positive result of screening or amniocentesis—but does not involve many of the emotional and therapeutic ingredients which are often associated with the word "counselling" in other contexts and which may be needed after positive test results. Clarification of terminology and of the relative roles of obstetricians and the primary care team may help to ensure that women receive the counselling that they require, which is not currently the norm.^{4,7}

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Appendix

Selected items from questionnaire

2 For each of the following screening tests please say whether it is routinely offered to: (1) all pregnant women in your care (assuming that they book in time), (2) a defined subgroup, or (3) none?

PLEASE CIRCLE A NUMBER FOR EACH TEST

	All	Some	None
Ultrasound: anomaly scanning	1	2	3
Ultrasound: dating scan	1	2	3
Serum screening for Down's syndrome	1	2	3
Serum screening for neural tube defects	1	2	3
Serum screening for toxoplasmosis	1	2	3
Other (please specify)	1	2	3

3 Some obstetricians find themselves carrying out certain procedures because of outside pressures—for example, consumer demand, medicolegal concerns, management decisions—rather than because they consider them clinically valuable. Is this true in your case for any of the screening/diagnostic procedures that you offer?

Yes . . . 1 No . . . 2

If yes, which?

4 Some obstetricians find that they are unable to carry out certain procedures that they think are beneficial because of outside pressures—for example, management decisions, financial constraints. Are there screening/diagnostic policies that you would like to implement but cannot?

Yes . . . 1 No . . . 2

If yes, what procedures and why?

8 Do you have sufficient resources to provide adequate counselling for all patients who are offered serum screening?

Yes . . . 1 No . . . 2

IF YOU DO NOT OFFER SERUM SCREENING FOR DOWN'S SYNDROME, PLEASE GO TO QUESTION 10

9 If you do offer serum screening for Down's syndrome could you please indicate the extent to which you have encountered any of the following problems? PLEASE CIRCLE ONE NUMBER FOR EACH PROBLEM

	Not a problem	Some problem	Major problem
Anxiety caused by offer of test	0	1	2
Anxiety caused by false positives	0	1	2
Women not understanding test	0	1	2
Unnecessary scans	0	1	2
Unnecessary amniocenteses	0	1	2
Screen positive women refusing amniocentesis	0	1	2
Screen negative women wanting amniocentesis	0	1	2
Midwives not understanding test	0	1	2

IF YOU DO NOT OFFER SERUM SCREENING FOR NEURAL TUBE DEFECTS, PLEASE GO TO QUESTION 11

10 If you do offer serum screening for neural tube defects, could you please indicate the extent to which you have encountered any of the following problems. PLEASE CIRCLE ONE NUMBER FOR EACH PROBLEM

	Not a problem	Some problem	Major problem
Anxiety caused by offer of test	0	1	2
Anxiety caused by false positives	0	1	2
Women not understanding test	0	1	2
Unnecessary scans	0	1	2
Unnecessary amniocenteses	0	1	2
Screen positive women refusing further tests	0	1	2
Midwives not understanding test	0	1	2

Is there anything else that you would like to say about serum screening?

15 Do you have sufficient resources to provide adequate counselling for all patients who are offered amniocentesis/chorionic villus sampling?

Yes . . . 1 No . . . 2

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Audit of requests for preoperative chest radiography

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Requests at our hospital for preoperative chest radiography were increasing but radiology staff did not know whether the increase was related to a change in workload or in clinical practice. We determined the rate of requests for preoperative radiography in patients undergoing elective surgery and the impact of such an investigation on subsequent clinical management.

Methods and results

From 12 to 26 June 1992 we audited all admissions in all specialties of patients due to have elective surgery. We put preoperative chest radiographs in labelled envelopes, which were then sealed with staples; these envelopes were put in radiography packets, which the patients took back to the ward. The packets were returned to the radiology department after the patients had been discharged. If the staples on an envelope had been removed we concluded that the radiograph had been reviewed.

We disseminated the results of this study at departmental audit meetings in surgery, anaesthetics, and radiology. After discussion among staff, revised guidelines, based on advice from the Royal College of Radiologists,¹ were issued to doctors and displayed on all surgical wards (box). Radiology staff were encouraged to challenge apparently inappropriate requests. We then assessed the rate of requests for preoperative chest radiography from 21 June to 2 July 1993.

The overall rate of requests for preoperative chest radiography fell from 24% (102/430) in 1992 to 7% (54/725) in 1993. The 1992 request rate from the urology department (44% (38/86)) was the highest of all the specialties and fell the most, to 2% (4/169). The request rate from the general or vascular surgery department fell from 32% (49/154) to 11% (23/213), but the rates from the gynaecology and orthopaedics departments changed little (6% (5/90) and 10% (10/100) respectively in 1992; 8% (8/104) and 9% (17/182) respectively in 1993). The request rate from the ophthalmology department, transferred to this hospital after June 1992, was 4% (2/57).

In 1992, 77 of the 102 (75%) radiography packets were returned to the radiology department with the staples intact on the envelopes holding the radiographs. These radiographs could not therefore have been reviewed. We assumed that the remaining 25 (25%) radiographs had been reviewed preoperatively; the rate of opened envelopes ranged from 0% (0/5) for the gynaecology department to 40% (4/10) for the orthopaedics department. In 1993 the number of preoperative chest radiographs performed was too low

(five a day) for us to repeat reliably the study of the proportion of opened envelopes.

Comment

Increasing emphasis on the efficient use of inpatient beds has resulted in a rise in day case surgery and has reduced length of admission for elective procedures. House officers overinvestigate patients before surgery, particularly with respect to chest radiography.² In our 1992 audit all requests for radiography from the orthopaedics and gynaecology departments were made by senior house officers and those from urology and general or vascular surgery departments by preregistration house officers. The higher request rates for urology and general or vascular surgery (44% and 32% respectively) compared with those for orthopaedics and gynaecology (10% and 6% respectively) suggest that inexperience or inadequate supervision may influence the degree of investigation.

A 1979 study of elective surgical patients found that the rate of requests for preoperative chest radiography at eight hospitals ranged from 12% to 54% (mean 30%), with wide variation among specialties (from 47% in general surgery to 13% in gynaecology).³ Our 1992 findings were similar.

It is surprising that at least 75% of radiographs during the 1992 audit were not examined despite being available on the wards and in theatre. These

Guidelines for preoperative chest radiography

The Royal College of Radiologists' guidelines for preoperative chest radiography among patients admitted for elective non-cardiopulmonary surgery state that routine chest radiography is no longer justified. This investigation may be clinically desirable, however, in certain patients in the following categories:

- Those with acute respiratory symptoms
- Those with possible metastases
- Those with suspected or established cardio-respiratory disease who have not had chest radiography in the past 12 months
- Recent immigrants from countries where tuberculosis is still endemic and who have not had chest radiography in the past 12 months

Preoperative chest radiography will also be performed in the following categories of patients:

- Those with a recent history of chest trauma
- Those whose operation may involve a thoracotomy
- Heavy smokers who have not had chest radiography in the past 12 months
- Patients not included in the above categories if the request is made by the appropriate anaesthetist

It should be noted that none of the above categories of request is routine, and therefore the reasons for chest radiography should always be stated on the request card.