BRITISH MEDICAL JOURNAL

SATURDAY 17 OCTOBER 1981

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NO 6298 BRITISH MEDICAL JOURNAL 1981 VOLUME 283 1005-1072
BRITISH MEDICAL ASSOCIATION TAVISTOCK SQUARE LONDON WC1H 9JR.

ASTM CODEN: BMJOAE 283 (6298) 1005-1072 (1981)
WEEKLY. SECOND CLASS POSTAGE PAID AT NEW YORK NY

CORRESPONDENCE

We may return unduly long letters to the author for shortening so that we can offer readers as wide a selection as possible. We receive so many letters each week that we have to omit some of them. Letters must be signed personally by all their authors. We cannot acknowledge their receipt unless a stamped addressed envelope or an international reply coupon is enclosed.

Correspondents should present their references in the Vancouver style (see examples in these columns). In particular, the names and initials of all authors must be given unless there are more than six, when only the first three should be given, followed by et al; and the first and last page numbers of articles and chapters should be included. Titles of papers are not, however, included in the correspondence section.

Maternal alpha fetoprotein screening

SIR,—The balance of the risk-benefit equation in a screening programme for open neural tube defect is particularly dependent on the incidence of neural tube defect and the accuracy of diagnostic procedures. In low-risk areas this equation may be very finely balanced.

In a recent study in a low-risk area Susan J Standing and others (12 September, p 705) questioned the value of α-fetoprotein screening because "the correlation between concentrations of maternal α-fetoprotein and fetal open neural tube defects, anencephaly apart, is insufficiently close to justify this type of screening." Their findings, which are at variance with the conclusion expressed in previous publications,[1-3] question the validity of the procedure irrespective of incidence; and if their conclusions are valid they would apply to high-risk as well as to intermediate- and low-risk areas. For these reasons the paper warrants very close inspection to see if the authors' conclusions are fully justified.

In particular, what "fail-safe" procedures can be introduced to improve the detection rate? (1) A lower α-fetoprotein value could be taken as the "action line." This would increase the sensitivity of the test, but also the work load and the hazard to normal pregnancies if the full process of investigation were followed. (2) Repeat serum assays could be carried out in "borderline" cases. This is commonly but not logically applied. If the results of the two assays are discrepant a third sample should be undertaken but because of other constraints rarely is. Thus further action may be based on a variety of ill-defined criteria. (3) High-resolution ultrasound scanning can be applied to all borderline cases, thereby improving the yield of position diagnoses without increasing the risks to normal pregnancies associated with amniocentesis. We would suggest that the third is the preferable option and that it will increase in value and importance with the advent of increasingly accurate equipment and the development of scanning expertise. It may be combined with repeat serum α-fetoprotein assay.

These alternatives, however, all beg the overriding problem of gestational dating which becomes so important when interpreting borderline results. For example, if we take the data of Susan Standing and her colleagues the two "false-negative" serum tests showed values of 1·8 and 1·6 times the median respectively. Revision of the gestational ages downwards by only one week would give values of 2·1 and 1·8 respectively and by two weeks values of 2·4 and 2·1 respectively, both above their action line. Should the "within-batch" variation of 5·4% and "between-batch" variation of 7-11% also happen to give variations toward the lower values this would introduce additional bias equivalent to one week of gestation. Therefore cases 7 and 8 in this study are likely to be mothers who needed amniocentesis but did not get it.

The South Wales anencephaly and spina bifida screening programme was established to examine the operational issues resulting from a large-scale population screening programme under field conditions. In our study we became acutely aware of the critical importance of accurate estimation of gestational age and its influence on the interpretation of serum α-fetoprotein values.[4] In a quadruple-blind study the three antenatal methods of assessment—menstrual dates, clinical examination, and ultrasound scanning—were correlated with postnatal assessment using the Dubowitz scoring system. The best agreement to plus or minus one week was obtained using menstrual dates and ultrasound in combination, such agreement being found in 91 (77%) of the 118 women studied. We concluded that with an amniocentesis rate of 5%—that is, all mothers with serum α-fetoprotein concentrations over the 95th centile—and 70% accuracy of gestational dating to plus or minus one week 32% of mothers referred for amniocentesis may not actually need it and only 68% of those who need it will actually have it. This appertains to programmes carried out in optimal clinical circumstances. In our study we seriously considered amniocentesis for all patients above the 95th centile and looked very carefully at all those with serum values above the 90th centile using diagnostic ultrasound. In this way we avoided some of the pitfalls associated with incorrect estimation of gestational age.

The results of this four-year South Wales research programme will be presented at a symposium in Cardiff on 25 November. While we agree entirely with Susan Standing and her colleagues about the critical importance of gestational age estimation, our own conclusions about the likely value of maternal