BRITISH MEDICAL JOURNAL

SATURDAY 12 DECEMBER 1981

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NO 6306 BRITISH MEDICAL JOURNAL 1981 VOLUME 283 1559-1628
BRITISH MEDICAL ASSOCIATION TAVISTOCK SQUARE LONDON WC1H 9JR.

ASTM CODEN: BMJOAE 283 (6306) 1559-1628 (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 article by Susan J Standing and others (12 September, p 705) describing their disappointment with maternal α-fetoprotein screening illustrates some of the difficulties that can be encountered in running such a programme. However, we consider their tone to be excessively pessimistic. Many of the difficulties which they describe are problems associated with organisation. The need to send amniotic fluid samples to a distant laboratory for analysis was a severe disadvantage.

Currently antenatal patients attending three district general hospitals in the South-west Thames Region are being screened for neural-tube defect. The programme was commenced, after a brief feasibility study, in 1978, for one of the districts (Kingston and Richmond—adjusted incidence of neural tube defect in 1977 before screening was 2·71 per 1000 births). Enthusiastic attention to the details of organising the screening programme was given by all concerned and good channels of communication were established early on.

Samples of serum and amniotic fluid were assayed in the same laboratory at the regional protein reference unit, Putney, where α-fetoprotein assay of maternal serum and amniotic fluid was already established. Each serum sample was assayed by an in-house radioimmunoassay method (adapted from the method of Nishi and Hirai[1]). A cut-off limit of 2·5 × the median was used with a recommendation that values equal to or in excess of 2·3 × the median should be considered "borderline" and a repeat sample would be assayed if requested. Raised values were checked by re-assaying the same specimen before the report was made. Amniotic fluid α-fetoprotein was estimated by the Laurell "rocket" electroimmunoassay method.

In the first year of screening 2217 patients were screened, and 112 were considered to have raised serum α-fetoprotein concentration. Amniotic fluid specimens were received from 53 patients with raised serum α-fetoprotein levels. Ten of these were found to have raised α-fetoprotein values: two were heavily contaminated with fetal blood as shown by the Kleihauer test; the α-fetoprotein level in four was markedly raised and in one was moderately raised. These latter five pregnancies were terminated after confirmation of abnormality by ultrasound (two cases of anencephaly, two of spina bifida, and one of massive exomphalos); one pregnancy with a grossly elevated amniotic fluid α-fetoprotein value was spontaneously aborted, a very macerated fetus being delivered eight days after amniocentesis. In two patients whose amniotic fluid showed marginally elevated α-fetoprotein levels the estimated gestational ages were revised and the amniotic fluid α-fetoprotein values were then judged to be within their respective normal ranges. These two pregnancies went to term and normal infants were delivered. One fetus with a closed encephalocele was born at term. The maternal serum α-fetoprotein had been normal and this was confirmed when the stored specimen was reassayed. The failure to detect a closed neural-tube defect was unavoidable. We were gratified that the incidence of neural-tube defect was shown to have dropped to 0·38 per 1000 births for that year.

In the following two years maternal α-fetoprotein screening was carried out in the other two districts (based on St Peter's Hospital, Chertsey, and Queen Mary's Hospital, Roehampton). These two districts were in a position to benefit from the experience acquired by the previous year's screening and sufficient data had been accumulated to allow adjustment of median values. However, we retained the previous cut-off limits. In 1980 acetylcholinesterase isoenzyme separation[2] by polyacrylamide gel electrophoresis was added as a further investigation for all amniotic fluid samples and both α-fetoprotein and acetylcholinesterase results were used for the final interpretation. We found that this greatly increased confidence in the laboratory result.

In the three districts during the years 1978-80 6771 pregnant women were screened. A raised α-fetoprotein concentration was found in the first serum sample in 230 of these women, and amniotic fluid was taken because of a raised serum value in 121 cases; there was a raised α-fetoprotein concentration in the amniotic fluid in 18 cases. In five of the pregnancies terminated the fetus had